16
*

NATIONAL INDEX
OF
AGRICULTURAL
FIELD
EXPERIMENTS

VOL. 7 PART 3

TAMIL NADU

1960—65

ICAR

Published by
INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
NEW DELHI-110012

UNIVERSITY OF
ILLINOIS LIBRARY
AT URBANA-CHAMPAIGN
BOOKSTACKS

Provided by
The Library of Congress
Special Foreign Currency Program

NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 7 PART 3

TAMIL NADU

1960—65

ICAR

Published by
INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
NEW DELHI-110012

Q. 630.954
D37n
V. 7
pt. 3

FOREWORD

The I. C. A. R. has adopted the 'Co-ordinated approach' to crop improvement as its strategy in agricultural research. This approach is based on the principle of giving high priority to problem solving research and for the purpose an intimate knowledge of research in progress and trends of results is very essential. To give impetus to this approach, I. C. A. R. started a scheme for collecting data of all field experiments conducted in the country. It was aimed at compilation of agronomic experiments in the country, with a view to indicate the gaps in the knowledge and to avoid duplication. The scheme entitled "National Index of Field Experiments" is running under the Institute of Agricultural Research Statistics which has rendered a very valuable service by preparing compendia of agricultural field experiments conducted in the country. Two series of the compendia containing results of about 7,200 and 12,000 experiments conducted during the periods 1948-53 and 1954-59 respectively have already been published by the Institute. The present is the third series of compendia and is expected to contain the results of about 18,000 experiments conducted during the period 1960-65.

The number and the types of experiments have been increasing at a fast rate. Further, many of the experiments were being repeated over a number of years. The conclusions drawn from such experiments should take into account the seasonal variations. For this purpose, it was necessary to carry out consolidated analysis of results over years. Thus the task of compilation, analysis and interpretation of results of experiments being covered in the third series became more formidable compared to those covered in the earlier two series.

The preparation of this compendium has been possible by the whole-hearted co-operation of State Departments of Agriculture, Agricultural Universities and Central Research Institutes who ungrudgingly made the results of their experimental research available. My thanks are due to various officers of these institutions for participating in this work.

I hope that the present series will be followed by periodical publications of similar compendia for later years in order that the availability of results of scientific experiments in agriculture in India may be maintained up-to-date in a consolidated form.

B. K. SONI
Deputy Director General (AS)
Indian Council of Agricultural Research

NEW DELHI,
January 1, 1973

PREFACE

The present set of volumes form Part III in the series of compendia of Agricultural Field Experiments being published under the project of National Index of Field Experiments. Volumes comprising in Parts I and II of the series pertaining to the periods 1948-53 and 1954-59 were published in 1962 and 1965 and contained the results of about 7,200 and 12,000 experiments respectively. The present volumes include results of experiments conducted during the period 1960-65. During the last one decade, there has been an enormous increase in agricultural research and experimentation so much so that for the period 1960-65 to which the present volume refer, results of about 18,000 experiments are available.

Like the earlier two series, the compendium for Part III is divided into 15 volumes, one each for (1) Andhra Pradesh, (2) Assam, Manipur, Meghalaya, Arunachal, Nagaland, Mizoram and Tripura, (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Maharashtra, (8) Mysore, (9) Orissa, (10) Punjab, Haryana, J & K and Himachal Pradesh, (11) Rajasthan, (12) Tamil Nadu, (13) Uttar Pradesh, (14) West Bengal and (15) All Central Institutes. A departure has, however, been made in presentation of the material contained in each volume. Whereas the results of individual experiments were presented in the volumes of previous series, the present series contains the results of pooled statistical analysis of experiments that were conducted for two or more years and concluded during the period 1960-65; in respect of those experiments conducted only for one year, and also those conducted for more than one year but were continuing beyond 1960-65, the results of individual experiments have been presented.

The work under the scheme was carried out at the Institute of Agricultural Research Statistics. As it was spread over a number of years, there were changes in the officers responsible for the scheme. In successive stages, collection and analysis of data were carried out under the guidance of Shri T. P. Abraham, Assistant Statistical Adviser, now Joint Director, Central Statistical Organisation, Government of India, Dr. B. N. Tyagi, Senior Statistician, now Joint Director of Agriculture (Statistics), Uttar Pradesh and Shri M. G. Sardana, Senior Statistician, now Officer-on-Special Duty, Central Statistical Organisation, Government of India. The final stage of analysis and the printing was carried out under the guidance of Shri K. S. Krishnan, Sr. Statistician of the Institute. At the preparatory stage, the work of the third series of compendia was looked after by Shri O. P. Kathuria, Jr. Statistician, now Statistician in Indian Agricultural Research Institute. Subsequently, Shri R. K. Khosla, Jr. Statistician was responsible for the actual working of the scheme. Servashri P. P. Rao, S. N. Bajpai, M. P. Saksena, B. L. Chaudhary, M. L. Sahni, H. C. Jain, Mahesh Kumar, J. K. Kapoor, U. N. Dikshit, S. L. Garg, G. V. S. R. Krishna, G. L. Khurana, D. P. Singh, A. Lahiri, Mahender Singh, S. S. Kutaula, Kuldip Singh and Suresh Chand Jain, statistical staff of the Institute deserve special mention for their careful and painstaking work in the analysis of the data, combination of results of similar experiments and proof reading of the compendia volumes.

The collection of data of experiments from various research stations was done by the regional staff of the Institute placed in different States. They deserve to be congratulated for the hard work they have put in.

Thanks are due to the State Departments of Agriculture, the Central Institutes and the Agricultural Universities who made the data of the experiments conducted under their jurisdiction readily available to the staff of the Institute. The I. A. R. S. acknowledge with thanks this willing co-operation without which the consolidation of the results would not have been possible. The Institute is also thankful to various officers in the State Departments of Agriculture and Agricultural Universities who worked as regional supervisors for the project from time to time and provided guidance to the regional staff working in the scheme. The list of the names of the regional supervisors and regional staff of the project is given on the following pages.

M. N. DAS
Director
Institute of Agricultural Research Statistics
(I. C. A. R.)

NEW DELHI,
January 1, 1973

Regional Supervisors and Regional Staff of the National Index of Field Experiments

Sl. No.	Region & Headquarters	Statistical staff from the Institute of Agricultural Research Statistics	Regional Supervisor
1.	Andhra Pradesh (Hyderabad)	1. Shri C. H. Rao 2. Shri G. V. S. R. Krishna 3. Shri P. R. Yeri	1. Shri P. Govinda Rao, Head of the Agri. Res. Instt. 2. Shri S. Vittal Rao, H. Q. Dy. Director (Research)
2.	Assam (Shillong)	1. Shri A. Sinha 2. Shri K. D. Saha	1. Shri U. C. Borah, Research Officer (Stat.)
3.	Bihar (Sabour)	1. Shri R. K. Jain 2. Shri S. M. G. Saran	1. Shri G. P. Singh, Statistician
4.	Gujarat (Ahmedabad)	1. Shri S. P. Doshi	1. Dr. D. K. Desai, Dy. Director of Agriculture (Stat.) 2. Shri J. B. Trivedi, I/C. Dy. Director (Stat.) 3. Shri R. L. Shah, Dy. Director of Agriculture (Stat.)
5.	Kerala (Trivandrum)	—	1. Shri N. George John, Research Officer 2. Shri G. Rama Chandran Nair, Research Officer 3. Shri K. George, Research Officer
6.	Madhya Pradesh (Bhopal)	1. Shri Rama Rao Patil 2. Shri S. S. Kutaula	1. Shri A. G. Khare, Dy. Director of Agriculture (Stat.)
7.	Maharashtra (Poona)	1. Shri P. R. Yeri 2. Shri B. Ramakrishnan	1. Shri V. G. Sharma, Sr. Statistician 2. Shri G. C. Shaligram, Dy. Statistician 3. Shri D. T. Sawant, Asstt. Statistician
8.	Mysore (Bangalore)	1. Shri K. A. Balakrishnan 2. Shri P. T. N. Nambiar	1. Dr. N. P. Patil, Director of Research
9.	Orissa (Bhubaneswar)	1. Shri Rama Rao Patil	1. Shri B. Mishra, Dy. Director of Agri. (Hq.) 2. Shri A. Mishra, Chief Statistician

10.	Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir (Ludhiana)	1. Shri B. L. Kaistha 2. Shri U. N. Dixit 3. Shri D. L. Manocha 4. Shri M. S. Batra 5. Shri D. P. Singh	1. Shri P. S. Sahota, Director of Crop Insurance 2. Shri Darshan Singh, Asstt. Statistician 3. Shri M. S. Pannu, Statistician, Department of Agriculture 4. Dr. D. Raghavarao, Prof. & Head, Dept. of Maths. & Stat., P.A.U., Ludhiana
11.	Rajasthan (Jaipur)	1. Shri N. K. Ohri 2. Shri C. H. Rao	1. Shri H. C. Kothari, Dy. Director (Statistics), Department of Agriculture
12.	Tamil Nadu (Coimbatore)	1. Shri P. Narayanan 2. Shri M. V. George	1. Shri K. R. Nagaraja Rao, Secretary, Research Council 2. Dr. K. Ramakrishnan, Associate Dean 3. Dr. D. Daniel Sunderaraj, Principal
13.	Uttar Pradesh (Lucknow)	1. Shri S. N. Bajpai 2. Shri M. P. Saksena 3. Shri G. N. Bahuguna 4. Shri O. P. Sharma 5. Shri R. Sharma 6. Shri C. B. Tiwari 7. Shri R. S. Singh 8. Shri A. C. Srivastava	1. Dr. K. Kishen, Jt. Director of Agriculture (Statistics) 2. Shri K. P. Avasthy, Officer-on-Special Duty
14.	West Bengal (Calcutta)	1. Shri A. K. Mukherjee 2. Shri A. Sinha	1. Shri S. N. Mukherjee, Dy. Director of Agriculture (Statistics)

ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATORS' FIELDS GIVEN IN EXPERIMENTAL DATA

Crop :—In the top left corner, is given the name of the crop on which the experiment is conducted. Within brackets along side the crop, is mentioned the season wherever the information is available.

Ref :—Against the sub-title 'Reference' is mentioned the name of the State, the year in which the experiment is conducted and the serial number of the experiment for that year is given in brackets.

Abbreviations adopted for States are as follows :

1.	A.P.	—	Andhra Pradesh	11.	Ms.	—	Mysore
2.	As.	—	Assam	12.	N.L.	—	Nagaland
3.	Bh.	—	Bihar	13.	Or.	—	Orissa
4.	Gj.	—	Gujarat	14.	Pb.	—	Punjab
5.	H.P.	—	Himachal Pradesh	15.	Rj.	—	Rajasthan
6.	Hr.	—	Haryana	16.	T.N.	—	Tamil Nadu
7.	J.K.	—	Jammu & Kashmir	17.	Tr.	—	Tripura
8.	K.	—	Kerala	18.	U.P.	—	Uttar Pradesh
9.	M.P.	—	Madhya Pradesh	19.	W.B.	—	West Bengal
10.	Mh.	—	Maharashtra				

For the experiments conducted under the schemes sponsored by the Indian Council of Agricultural Research, like the All India Co-ordinated Agronomic Experiments (Model Agronomic Experiments and Simple Fertilizer Trials) scheme, no serial numbers have been given at the source as the data of these experiments were collected at the headquarters (New Delhi). In such cases, the abbreviation MAE or SFT is given in the brackets against the year in which the experiment is conducted.

Site & Centre :—Name of the Research Station is mentioned along with the place where it is located. *e.g.* Agri. Res. Stn., Vyara for Agricultural Research Station, Vyara.

For Central Institutes, the corresponding standard abbreviations have been adopted as given below :

C. A. Z. R. I. — Central Arid Zone Research Institute.
C. P. C. R. I. — Central Plantation Crops Research Institute.
C. P. R. I. — Central Potato Research Institute.
C. R. R. I. — Central Rice Research Institute.
C. S. S. R. I. — Central Soil Salinity Research Institute.
C. T. C. R. I. — Central Tuber Crops Research Institute.
C. T. R. I. — Central Tobacco Research Institute.
C. T. R. L. — Cotton Technological Research Laboratory.
I. A. R. I. — Indian Agricultural Research Institute.
I. G. F. R. I. — Indian Grassland & Fodder Research Institute.
I. H. R. — Institute of Horticultural Research.
I. I. S. R. — Indian Institute of Sugarcane Research.
I. L. R. I. — Indian Lac Research Institute.
J. A. R. I. — Jute Agricultural Research Institute.
J. T. R. L. — Jute Technological Research Laboratory.
S. B. I. — Sugarcane Breeding Institute.

In case of the experiments conducted on cultivators' fields, whether under an Indian Council of Agricultural Research scheme or by the State Government, the abbreviation (c. f.) is given along with the site or centre as, for example, Cuttack (c. f.).

Type :—Abbreviations used against this item are one, or more than one, of the following : C—Cultural ; D—Control of Diseases and Pests ; I—Irrigational ; M—Manurial ; R—Rotational ; V—Varietal and X—Mixed cropping. In factorial experiments, the treatments will be abbreviated as, for example. Cultural-*cum*-Manurial as CM.

Object :—A statement of the objective of the experiment is given indicating the main crop and the type of the experiment.

Results :—Information under this heading should be read against the following items :

(i) General mean. (ii) S. E. per plot. (iii) Results of test of significance. (iv) Summary table(s), with critical differences for individual effect means which are significant.

Other abbreviations used in the Experimental Data

Kg = Kilogram(s)
Kg/ha. = Kilogram(s) per hectare
N = Nitrogen
P = Phosphate
K = Potash
Nitro. Phos. = Nitrogen Phosphate
Ammo. Phos. = Ammonium Phosphate
A/S = Ammonium Sulphate
A/S/N = Ammonium Sulphate Nitrate
C/A/N = Calcium Ammonium Nitrate
A/N = Ammonium Nitrate
A/C = Ammonium Chloride
C/N = Chilean Nitrate
Mur. Pot. = Muriate of Potash
Pot. Sul. = Potassium Sulphate
Super. = Super Phosphate

Dical. Phos. = Dicalcium Phosphate
Zn. Sul. = Zinc Sulphate
Cu. Sul. = Copper Sulphate
Mg. Sul. = Magnesium Sulphate
Mn. Sul. = Manganese Sulphate
Ammo. Molybdate = Ammonium Molybdtee
B. = Boron
Fe. Sul. = Ferrous Sulphate
F. M. = Fish Manure
G. N. C. = Groundnut Cake
M. C. = Municipal Compost
T. C. = Town Compost
G. M. = Green Manure
G. L. M. = Green Leaf Manure
F. Y. M. = Farm Yard Manure
C. M. = Cattle Manure

The information regarding the particulars of research stations may be obtained under the respective items as given below :

PARTICULARS OF RESEARCH STATIONS

A. *General Information* :

(i) District and the nearest railway station with Latitude, Longitude and Altitude, if available. General topographpy of the experimental area. (ii) Type of tract it represents. (iii) Year of establishment. (iv) Cropping pattern. (v) Programme of research.

B. *Normal Rainfall* :

Average fortnightly rainfall, specifying the period on which the figures are based.

C. *Irrigation and Drainage facilities* :

(i) (a) Whether available ; if so, since when (b) Type of facilities available. (ii) Whether there is a proper drainage system.

D. *Soil type and Soil analysis* :

(i) Broad soil type with depth, colour and structure etc. (ii) Chemical analysis. (iii) Mechanical analysis.

E. *No. of Experiments* :

No. of experiments conducted on different crops that have been included in the compendium.

Information under the following heads is to be read against the respective items under experimental data as given on next page.

BASAL CONDITIONS

A. For experiments on annual crops :

(i) (a) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type. (iii) Date of sowing/planting. (iv) Cultural practices : (a) Preparatory cultivation. (b) Method of sowing. (c) Seed rate. (d) Spacing. (e) No. of seedlings per hole. (v) Basal manuring given to the whole experiment with time and method of application. (vi) Variety (indicate also early, medium or late). (vii) Irrigated or un-irrigated. (viii) Important post-sowing/planting cultural operations such as weeding, etc. (ix) Rainfall during crop season. (x) Date of harvest.

B. For experiments on perennial crops :

(i) Previous history of the experimental area (Give manuring and other operations). (ii) Soil type. (iii) Method of propagation of plants. (iv) Variety. (v) Date and method of sowing/planting (including spacing). (vi) Age of seedlings at the time of planting. (vii) Basal manuring given to the whole experimental area. (viii) Important cultural operations during the experimental year. (ix) Inter-cropping, if any. (x) Irrigated or un-irrigated (If irrigated, give the source, number, interval and intensity of irrigation). (xi) Rainfall during the experimental year. (xii) Date(s) of harvest.

C. For experiments on cultivators' fields :

(i) (a) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type and soil analysis, if available. (iii) Basal manuring (Give time and method of application). (iv) Variety. (v) Cultural Practices : (a) Preparatory cultivation. (b) Method of sowing. (c) Seed-rate. (d) Spacing. (e) No. of seedlings per hole. (vi) Date of sowing/planting. (vii) Irrigated or un-irrigated. (viii) Important post-sowing/planting cultural operations such as weeding, etc. (ix) Rainfall during crop season. (x) Date of harvest.

DESIGN

A. For experiments on annual crops :

(i) Abbreviations for designs : C. R. D.—Completely Randomised Design ; R. B. D.—Randomised Block Design ; L. Sq.—Latin Square ; Fact.—Factorial ; Confd.—Confounded ; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any). (ii) (a) No. of plots per block (in a split-plot experiment, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Gross plot-size. (b) Net plot-size. (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

B. For experiments on perennial crops :

(i) Abbreviations for designs: C. R. D.—Completely Randomised Design ; R. B. D.—Randomised Block Design ; L. Sq.—Latin Square ; Fact.—Factorial ; Confd.—Confounded ; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any) (ii) (a) No. of plots per block (in split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Net plot-size. (b) No. of trees per plot (In case of experiments on grasses give plot-size). (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

C. For experiments on cultivators' fields :

(i) Design with No. of plots/block and No. of replications (In split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (ii) Method of selection of sites with number and distribution of experiments. (iii) (a) Gross plot-size. (b) Net plot-size. (iv) Whether treatments are randomised (independently in each block).

GENERAL INFORMATION

A. For experiments on annual crops :

(i) General crop condition during growth (if lodged, state date of lodging). (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) (a) If the experiment has continued for more than one year, indicate year of commencement and year of termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Abnormal occurances such as heavy rains, frost, storm, drought, etc. (vii) Any other important information.

B. For experiments on perennial crops :

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) If the experiment has continued for more than one year, indicate year of commencement and year of termination (Give reference of previous years, if any). (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Reference to combined analysis, if any. (vii) Abnormal occurances such as heavy rains, frost, storm, drought, etc. (viii) Any other important information.

C. For experiments on cultivators' fields :

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) In case of repetition in successive years, (a) Year of commencement and termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) In case of repetition at other places, give names with references, if any. (vi) Abnormal occurances such as heavy rains, drought, etc. (viii) Any other important information.

GLOSSARY OF VERNACULAR NAMES OF CROPS

Sl. No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
1	Paddy	*Oryza sativa* L.	Dhan	Dhan	Dhano	Vadlu, Biyyamu	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan, Chawal	Chaul, Dhan
2	Jowar	*Andropogon sorghum* Brot., *Sorghum vulgare* Pers.	—	Jowar	Juara	Jonna	Cholam	Cholam	Jola	Jowari Jondhla	Jowari, Juar	Jowar, Jaur	Jowar
3	Bajra	*Pennisetum typhoides* Stapf Es Hubbard ; *Pennisetum typhoideum* L.	—	Bajra	Bajra	Sajja	Kambu	Kambu	Sajje	Bajri	Bajri	Bajra	Bajra
4	Ragi	*Eleusine coracana* Gaertn.	—	Marwa	Mandia	Ragi, Chodi	Keppai, Ragi	Ragi, Muthari	Ragi	Nagli , Nachni	Nagli, Bavto	Ragi, Mandika, Marwah	Mandhuka, Mandhal
5	Kodo Millet (Varagu)	*Paspalum scrobiculatum* L.	—	Kodo	Kodua	Arikelu, Arika	Varagu	Varaku	Harka	Kodra	Kodra	Kodon	Kodra
6	Potato	*Solanum tuberosum* L.	Alooguti	Alu	Bilati Alu	Bangaladumpa, Urlagadda	Uruzhai kilangu	Urala kizangu	Alu gedde	Batata	Aloo, Bat at a	Aaloo	Alu
7	Bhindi (Lady's finger)	*Hibiscus esculentus* ; *Abelmoschus esculentus*, Moench.	Bhendi	Dhenrosh	Vendi	Benda	Bendaikai	Venda	Bendekayi	Bhendi	Bhida, Bhinda	Bhindi	Bhindi, Tori
8	Bitter gourd	*Memordica charantia* L.	Tita Karela	Karala	Kalara	Kakarakaya	Pakarkai	Pavakka	Hagala kayi	Karla	Karela	Karela	Karela
9	Brinjal (Egg plant)	*Solanum melongena* L.	Bengena	Begun	Baigan	Vankaya	Katharikai	Vezhuthana	Badane kayi	Vange	Vengan	Baingan	Bengan ; Bataun
10	Cabbage	*Brassica oleracea* L. *var. capitata* L.	Bandha Kabi	Bandhakapi	Bandha Kobi	L. Akugobi	Muttaikose	Muttakose	Yele kosu	Kobi	Kobij	Patgobhy	Bandgobhi
11	Cauliflower	*Brassica oleracea* L. *Var. botrytis* L.	Phool kabi	Fulkapi	Fula kobi	Poogobi	Gospoovu	Cauliflower	Hukosu	Phul kobi ; Fulvar	Fulkobi ; Fulvar	Phool Gobhy	Phul gobhi
12	Corriander	*Coriandrum sativum* L.	Dhania	Dhaniya	Dhania	Dhaniyalu, Kothimera	Kothamalli	Kothamalli	Kottambri	Kothimbir, Dhane	Kothmir, Dh ɘa	Dhaniya	Dhania
13	Field bean	*Cyamopsis psoraloides* Dc. ; *Cyamopsis tetragonaloba* Taub.	Thupi Urahi	Guar	Gunar chhuin	Goruchikkudu	Kothavarnkai, Seeniavaraikai	Kothavara	Gori kayi	Guwar	Gavar	Guar	Guara
14	Sweet Potato	*Ipomoea batatas* L.	Mitha aloo	Mishti alu	Kandamula	Chilagadadumpa	Seeni Kilangai	Cheeni Kizangiu	Genasu	Ratalu	Shahkaria	Shakarkandi	Shakarkandi

Sl. No.	No. of Crop.	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
15	Tapioca	*Manihot ultilissima* ; *Manihot esculenta* Crantz.	Simolu Aloo	Shimulalu	—	Karra Pendalamu	Maravalli Kizhangu, Kuchi Kizhangu	Mara-cheeni	Maragen-asu	Tapioca	—	Tapioca	Tapioca
16	Sugarcane	*Saccharum officinarum* L.	Kuhiar	Akh	—	Cheruku	Karumbu	Karimbu	Kabbu	Oos	Sherdi	Ganna, Kamad, Naishakar	Kamad, Ganna, Eakh
17	Cotton	*Gossypium* spp.	Kapah	Karpas, Tula	Kapa	Pratti	Paruthi	Paruthi	Hatti	Kapus	Kapas	Kapas	Kapah
18	Tobacco	*Nicotiana tabacum* L.	Dhopat	Tamak	Uanpatra	Pogaku	Pugayilai	Pukayila	Hoge soppu	Tambaku	Tamaku	Tambaku	Tamaku, Tambaku
19	Groundnut	*Arachis hypogaea* L.	China badam	Cheena badam	China-badam	Nelashanga	Nilaka-dalai	Nilakka-dala	Kadale kayi	Bhuimug	Bhoising, Magafali	Mungphali	Mungfali
20	Gingelly	*Sesamum indicum* L. *Sesamum orientale* L.	Til	Til	Rasi	Nuvvulu	Ellu	Ellu	Yellu	Til, Tili	Tal	Til	Til
21	Castor	*Ricinus communis* L.	Eri	Rehri	Jada	Amudalu	Amanakku	Avanakku	Haralu	Erandi	Diveli, Erando	Rehri	Arind, Harind, Rind
22	Safflower	*Carthamus tinctorius* L.	Kusum	Kusum	Kusum	Kusuma	Kusumba	Chandru-kam	Kusube	Kardi	Kosambi	Kusum or Barre	Kasumba
23	Chillies	*Capsicum frutescens* L.	Jalakiya	Lanka, Marich	Lanka	Mirapa-kaya	Milakai	Mulaku	Menasina kayi	Mirchi	Marcha	Lalmirich	Lal mirch
24	Fox glove	*Digitalis purpurea* L.	—	—	—	—	—	—	—	—	—	—	—
25	Thorn Apple (Datura)	*Datura innoxia* Mill.	—	—	—	—	—	—	—	—	—	Sadahdha-tura	—
26	Banana	*Musa paradisiaca* L.	Kol	Paka kala	Kadali	Arati	Vazhaipa-zam	Vazha	Bale	Kale	Kela	Kela	Kela
27	Grapes	*Vitis vinifera* L.	Angur	Angur	Angur	Draksha	Kodimun-dri	Munthiri	Drakshi	Draksha	Darakh	Angoor	Angur
28	Mango	*Mangifera indica* L.	Am	Am	Amba	Mamidi	Mangai	Mavu	Mavu	Amba	Keri	Aam	Amb

CONTENTS

		Page
FOREWORD	...	(iii)
PREFACE	...	(v)
LIST OF ABBREVIATIONS	...	(ix)
GLOSSARY OF VERNACULAR NAMES OF CROPS	...	(xiii)
TAMIL NADU STATE (Salient features of experimentation)	...	(xvii)
PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS	...	(xxiii)
EXPERIMENTAL DATA		
Paddy	...	1
Jowar	...	207
Bajra	...	257
Ragi	...	270
Varagu	...	306
Potato	...	308
Bhindi	...	344
Bitter gourd	...	351
Brinjal	...	357
Cabbage	...	363
Cauliflower	...	365
Corriander	...	365
Field Bean	..	366
Sweet Potato	...	369
Tapioca	...	370
Tomato	...	371
Sugarcane	...	372
Cotton	...	419
Tobacco	...	512
Groundnut	...	518
Gingelly	...	579
Castor	...	587
Safflower	...	592
Chillies	...	594
Digitalis Purpuria	...	605
Daturia Innoxia	...	606
Banana	...	607
Grapes	...	615
Mango	...	622
Mixed crops	...	625
INDEX (Crop-wise and Type-wise)	...	631

TAMIL NADU

(Salient features of experimentation)

The general information regarding the agro-climatic regions, extent of irrigation, normal cropping pattern, etc., of the State of Tamil Nadu (formerly Madras State) is available in the volumes of the first and second series of the National Index of Agricultural Field Experiments already published for the periods 1948-53 and 1954-59 respectively.

This volume includes the results of 851 experiments conducted during the period 1960-65, besides those belonging to the All India Co-ordinated Agronomic Experiments scheme of I.C.A.R., as against 664 experiments for the period 1954-59 and 539 for the period 1948-53. The consolidated results of experiments conducted for more than one year and concluded during the period 1960–65 numbering 429 and forming 149 groups, have been presented with crop-wise and type-wise distribution in Table 1 below :

TABLE 1.

Number of groups of experiments concluded during the period 1960-65

(crop-wise and type-wise)

Type / Crop	M	MV	C	CV	CM	CMV		IM	IC	D	X	Total
Paddy	20(59)	7(18)	1(4)	—	2(4)	—	—	—	—	15(49)	—	45(134)
Jowar	4(13)	—	—	—	—	—	—	—	—	4(9)	—	8(22)
Bajra	5(15)	—	—	—	—	—	—	—	—	—	—	5(15)
Ragi	5(16)	—	—	—	—	—	—	1(2)	—	—	—	6(18)
Potato	2(4)	1(5)	6(21)	—	1(5)	—	—	—	—	5(16)	—	15(51)
Brinjal	—	—	—	—	—	—	—	—	—	1(3)	—	1(3)
Sweet Potato	—	—	—	—	—	—	—	—	—	1(3)	—	1(3)
Sugarcane	9(24)	3(7)	4(9)	2(5)	—	—	—	—	2(6)	2(5)	—	22(56)
Cotton	9(29)	—	1(3)	—	3(10)	—	—	1(4)	—	8(16)	—	22(62)
Groundnut	5(11)	—	3(11)	—	—	2(8)	1(2)	—	—	—	—	11(32)
Gingelly	1(2)	—	—	1(2)	—	—	—	—	—	2(4)	—	4(8)
Chillies	1(3)	—	—	—	—	—	—	—	—	—	—	1(3)
Digitalis Purpuria	1(2)	—	—	—	—	—	—	—	—	—	—	1(2)
Banana	—	—	—	—	1(2)	—	—	—	—	—	—	1(2)
Grapes	—	—	—	—	—	—	2(9)	—	—	—	—	2(9)
X	—	—	—	—	—	—	—	—	—	—	4(9)	4(9)
Total	62(178)	11(30)	15(48)	3(7)	7(21)	2(8)	3(11)	2(6)	2(6)	38(105)	4(9)	149(429)

N B : Figures in brackets indicate total number of experiments in the groups.

The results of experiments conducted for only one year during the period under report and also those of the experiments which are continued beyond 1965, numbering 41 and 381 respectively, have also been presented. The distribution of all the experiments, according to crop and type of treatments, is furnished in Table 2 below :

TABLE 2.
Number of experiments
(crop-wise and type-wise)

Type / Crop	M	MV	C	CV	CM	CMV	I	IM	IC	D	X	Total
Paddy	92	31	5	—	9	—	—	—	—	126	—	263
Jowar	19	—	—	—	—	—	—	1	—	33	—	53
Bajra	17	—	—	—	—	—	—	—	—	1	—	18
Ragi	25	—	—	—	1	—	—	2	—	10	—	38
Potato	7	5	23	—	5	—	—	—	—	41	—	81
Bhindi	—	—	—	—	—	—	—	—	—	10	—	10
Bitter gourd	—	—	—	—	—	—	—	—	—	8	—	8
Brinjal	1	—	—	—	—	—	—	—	—	9	—	10
Cabbage	—	—	—	—	—	—	—	—	—	2	—	2
Cauliflower	—	—	—	—	—	—	—	—	—	1	—	1
Corriander	—	—	—	—	—	—	—	—	—	1	—	1
Field Beans	—	—	—	—	—	—	—	—	—	4	—	4
Sweet Potato	—	—	—	—	—	—	—	—	—	3	—	3
Tapioca	—	—	—	—	—	—	—	—	—	2	—	2
Tomato	—	—	—	—	—	—	—	—	—	1	—	1
Sugarcane	30	8	12	5	—	—	—	—	6	21	—	82
Cotton	43	—	8	—	19	1	—	4	—	44	—	119
Groundnut	13	—	25	—	—	8	2	1	—	15	—	64
Gingelly	3	—	1	2	—	—	—	—	—	9	—	15
Castor	2	—	—	—	—	—	—	—	—	5	—	7
Safflower	—	—	—	—	—	—	—	—	—	3	—	3
Chillies	3	—	—	—	—	—	—	—	—	7	—	10
Dig. Purpuria	2	—	—	—	—	—	—	—	—	—	—	2
Daturia Innoxia	1	—	—	—	—	—	—	—	—	—	—	1
Banana	2	—	1	—	6	2	—	—	—	—	—	11
Grapes	8	—	9	—	—	—	9	—	—	—	—	26
Mango	2	—	—	—	—	—	2	—	—	—	—	4
X	—	—	—	—	—	—	—	—	—	—	12	12
Total	270	44	84	7	40	11	13	8	6	356	12	851

The principal crops of the State are Paddy, Jowar, Bajra, Ragi, Sugarcane, Cotton and Groundnut. Other oilseed crops like Gingelly, Castor and Safflower, tuber crops like Potato and Sweet Potato are also grown in the State though their coverage is comparatively small. The salient features of experimentation on different crops are given in the ensuing paragraphs.

Paddy :—Paddy crop covered about 2,626* thousand hectares i.e. 36·6% of the total cropped area. 263 experiments were reported on this crop, all being under irrigated conditions. 45 groups of experiments consisting of 134 experiments were concluded during the period under report. Important varieties of Paddy, used for experimentation, were Co—25 (79 experiments), Adt—3 (32 experiments), TKM—6 (21 experiments), Adt—8 (20 experiments), Co—19 (18 experiments) and Adt—10 (14 experiments). These varieties accounted for about 79% of the experiments in which varieties were not part of the treatments. Co—29, Asd—1, Co—13, PLR—2 and Co—30 were the other varieties used for experimentation. The net plot-size ranged from 2·4 square metres to 102 square metres, the extreme cases depending on the number of treatments tried in the experiments.

The experiments on this crop laid out in Randomised Block Design numbered 174, Split-plot Design 56 and in Strip-plot Design 25. Confounded Designs and Latin Square Design were adopted in 7 and 1 experiments respectively. The number of replications used in different Designs and the degrees of freedom available for error variance(s) for testing treatments are given in the Table below :

Sl. No.	Design	Number of Experiments with									Total number of experiments
		Replications				Degrees of freedom for error variance					
		2 to 3	4 to 6	7 to 9	10 to 12		upto 6	7 to 11	12 to 30	31 and above	
1.	Randomised Block	4	145	5	20		—	17	126	31	174
2.	Latin Square	—	1	—	—		—	—	1	—	1
3.	Confounded	3	4	—	—		—	—	3	4	7
4.	Split-plot	3	53	—	—	E_a	27	4	25	—	
						E_b	—	—	3	53	56
5.	Strip-plot	—	25	—	—	E'_a	1	4	20	—	
						E'_b	—	—	18	7	25
						E'_c	—	—	1	24	

N.B. : In Split-plot Design, E_a=Error variance for testing main-plot treatments and E_b=Error variance for testing sub-plot treatments and main-plot × sub-plot interaction (s). In Strip-plot Design, E'_a= Error variance for testing treatments in one direction, E'_b=Error variance for testing treatments in orthogonal direction and E'_c=Error variance for testing interaction.

About 49% of the experiments reported were for controlling pests and diseases, 35% were of purely manurial type while the remaining were manurial-*cum*-varietal, cultural and cultural-*cum*-manurial experiments. In the manurial experiments, levels of Nitrogen, Phosphate and Potash ranged between 0 to 90 Kg/ha., 0 to 67 Kg/ha. and 0 to 67 Kg/ha. respectively. Sources of Nitrogen and Phosphate, levels of different micro-nutrients, foliar sprays of nutrients, time of application of Nitrogen and levels of lime were the other factors tried. In the cultural and cultural-*cum*-manurial experiments, seed-rates, methods of sowing, spacings, dates of planting and methods of cultivation were the factors tried. In the experiments to control pests and diseases different fungicides, pesticides and insecticides were used in different concentrations.

---

*Figures taken from Indian Agricultutral Statistics, Vol. I, issued by the Directorate of Economics and Statistics, Ministry of Food and Agriculture, C.D. and Co-operation for 1964-65.

Jowar :—Jowar crop covered about 767* thousand hectares i.e. 10·7% of the total cropped area. Out of 53 experiments reported, 42 were under irrigated conditions and the remaining under completely rainfed conditions. Varieties Co – 18 and Co—1 accounted for about 72% of the experiments. The former was used mainly under irrigated conditions and the later both under irrigated and rainfed conditions. The other varieties that were used in the experiments were K—2, Co—4 and Co—20 under irrigated conditions and Co—11 under rainfed conditions.

About 89% of the experiments were laid out in Randomised Block Design while the remaining experiments were in Split-plot Design. All the experiments in Split-plot Design had six replications. Out of the 47 experiments laid out in Randomised Block Design, 42 experiments had four to six replications, 2 each had three and fifteen replications while 1 had eight replications. The net plot-size varied from 5 square metres to 48 square metres. About 62% of the experiments were conducted with the objective of controlling pests and diseases and excepting one experiment which was irrigational-*cum*-manurial type, the remaining were of manurial type In the manurial experiments, levels of Nitrogen ranged from 0 to 67 Kg/ha. Sources of Nitrogen, different types of fertilizers, time and method of application of fertilizers were the other factors tried. In the D type experiments, different fungicides and insecticides were tried in varying concentrations and also by different methods of application.

Bajra :—Bajra crop covered about 440* thousand hectares i.e. 6·1% of the total cropped area. 18 experiments were reported on this crop. Almost equal number of experiments were conducted both under irrigated and completely rainfed conditions. Varieties X—3, Co—3 and Co—4 were used under irrigated conditions and K—1 was used under rainfed conditions. About 61% of the experiments were laid out in Randomised Block Design and the remaining experiments were laid out in equal numbers in Split-plot and Confounded Designs. The number of replications adopted in these experiments ranged between 3 and 6. The net plot-size used in the experiments varied from 8 Sq. metres to 48 Sq. metres. Almost all the experiments were of manurial type. In the manurial experiments, levels of Nitrogen ranged from 0 to 67 Kg/ha. while that of Phosphate and Potash ranged between 0 and 45 Kg/ha. Sources of Nitrogen and its time of application were the other factors tried.

Ragi :—Ragi crop covered about 320* thousand hectares i.e. 4·5% of the total cropped area. 38 experiments were reported on this crop. Almost all experiments were conducted under irrigated conditions. Important varieties that were used in the experiments, were Co—1, Co—2 and Co—7. About 74% of the experiments were laid out in Randomised Blocks and the rest were in Split-plot Design. Number of replications adopted in different experiments ranged from 3 to 6 while the area of net plot-size varied from 4·7 Sq. metres to 57 Sq. metres. About 66% of the experiments were of manurial type and about 26% were of 'control of pests and diseases' type. In the manurial experiments, the levels of Nitrogen ranged between 0 and 67 Kg/ha. Organic manures, sources and methods of applications of Nitrogen and foliar application of nutrients were the other factors tried. In the D type of experiments, different fungicides were tried to control the blast diseases.

Sugarcane:– Sugarcane crop covered about 97·96* thousand hectares i.e. 1·37% of the total cropped area. 82 experiments were reported on this crop, all being under irrigated conditions. Variety Co—419 was used in about 71% of the experiments while Co—449 was used in about 20% of the experiments. Co—658 and Co—785 also were used in a few cases. About 73% of the experiments were laid out in Randomised Block Design while the rest were in Split-plot Design. About 77% of the experiments, conducted both in Randomised Block Design and Split-plot Design had four to six replications. All the remaining experiments with

Split-plot Design had two replications ; but with Randomised Block Design 10% had two replications, 3% three replications and 5% eight replications. The net plot-size varied from 12 Sq. metres to 112 Sq. metres. About 46% of the experiments were of manurial type. About 25% of the experiments were conducted for control of pests and diseases. Experiments on different cultural practices accounted for about 21% of the total. In the manurial experiments, the levels of Nitrogen, Phosphate and Potash ranged from 0 to 423 Kg/ha., 0 to 168 Kg/ha. and 0 to 336 Kg/ha. respectively. Time and method of application of Phosphate, sources of Nitrogen and foliar sprays of Nitrogen were the other factors tried. In cultural experiments, methods of cultivation and planting, types of seed, seed-rates, trash mulches and dates of defoliation were the factors tried. In the D type ,experiments, weedicides for controlling weeds and insecticides and pesticides for the control of pests and diseases were tried.

Cotton :—Cotton crop covered about 376* thousand hectares i.e. 5·2% of the total cropped area. 119 experiments were reported on this crop. About 81% of the experiments were conducted under irrigated conditions while rest of them were under completely rainfed conditions. MCU—1, MCU—2, MCU—3 were the varieties mostly used under irrigated conditions while K—6 was the variety used under rainfed conditions. About 63% of the experiments were laid out in Randomised Block Design while 30% were laid out in Split-plot Design. The remaining experiments were laid out in Confounded Designs. The number of replications for Randomised Block Design and Split-plot Design ranged from three to six. Out of the 8 experiments conducted in Confounded Designs, 3 had four replications while the remaining were unreplicated. The net plot-size varied from 8 Sq. metres to 64 Sq. metres. About 37% of the experiments were of manurial type and a similar percentage was accounted by the experiments relating to the control of pests and diseases. About 23% of the experiments were of cultural type. In the manurial experiments, levels of Nitrogen, Phosphate and Potash ranged from 0 to 112 Kg/ha., 0 to 67 Kg/ha. and 0 to 67 Kg/ha. respectively. Different green manures, sources of Nitrogen, time and method of application of Nitrogen and other fertilizers and levels of compost or F.Y.M. were the other factors tried. In the cultural experiments, sowing dates, mulching treatments, row and plant spacings and number of plants per hole were the factors tried. In the D type of experiments, different antibiotics, fungicides, insecticides and chemicals were tested for the control of pests and diseases. Weedicides and nematicides were tested to control weeds and nematodes. Seed dressings of different fungicides were also tested against disease. Studies were also made to see the effect of chemical defoliants on the yield and fibre properties of Cotton. Effect of different concentrations of A-Napthalene Acetic Acid and different times of its application were studied on the growth and yield of Cotton.

Groundnut :—Groundnut crop covered about 901* thousand hectares i.e. 12·6% of the total cropped area. 64 experiments were reported on this crop, 43% of the experiments being under irrigated conditions and the remaining under completely rainfed conditions. Variety TMV—2 was used uniformly both under irrigated and rainfed conditions while TMV—3 was used under rainfed conditions only and TMV—4 under irrigated conditions. About 76% of the experiments were laid out in Randomised Block Design, 17% in Split-plot Design and the remaining in Confounded Designs. In the Randomised Block Design, four to six replications were used in the case of 92% of the experiments. There were a few experiments with two, seven and eight replications, depending on the number of treatments. Four to six replications were used for the experiments laid out in Split-plot Design. In the Confounded Designs, only one experiment had five replications while three experiments were unreplicated. The net plot-size varied from 12 Sq. metres to 112 Sq. metres. 39% of the experiments were of cultural type, 23% were for controlling pests and diseases and 20% were of manurial type. The remaining experiments were cultural-*cum*-manurial-*cum* varietal, irrigational and irrigational-*cum*-manurial types. In the manurial experiments, the levels of Nitrogen, Phosphate & Potash ranged from 0 to 34 Kg/ha., 0 to 45 Kg/ha. and 0 to 56 Kg/ha. Levels of lime, F.Y.M. and compost, forms of Nitrogen and methods of application of manures and fertilizers were the other factors tried. In cultural experiments, mulching treatments, methods of cultivation, spacings, sowing and harvesting dates were the factors tried. In D type experiments, fungicides and insecticides were used for controlling pests and diseases of the crop.

Miscellaneous crops :—Besides the above crops, experiments were reported on vegetables like Bhindi, Brinjal, Bitter Gourd, Field Beans, Cabbage, Cauliflower and Tomato and tuber crops like Potato, Sweet Potato and Tapioca. Though Groundnut was the major crop among the oilseed crops, experiments were also reported on crops like Gingelly, Castor and Safflower. A small percentage of experiments were reported on perennial crops like Grapes, Mango and Banana.

PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

1. Central Banana Research Station, Aduthurai.

A. General Information :

(i) In Kumbakonam taluka of Thanjavur district, 1·6 km. from Aduthurai R. S. on the Madras-Dhanushkodi main line with Lat.-11° N./Long.-79°-30′ E./Alt. 19.5 m. above m.s.l. Silt deposited high level *Padugai* lands, intersected by channels and surrounded by low lying wetlands. (ii) The site of the research station represents the typical area of the silt deposited high level tract that is found all along the river Cauvery and its tributaries that ramify the delta in this district where the perennial system of Banana cultivation is in vogue for over a century. (iii) Established in 1949. (iv) Perennial Banana cultivation. (v) Items of programme of reseach are—(a) Varietal collection, (b) Mutants and selections, (c) Hybridization, (d) Trials on various plantation practices and (e) Fundamental studies on fruit development in selected commerical varieties.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
5.3	0.8	0.2	0.5	0.3	1.5	0,5	1.5	2.7	6.1	3.3	0.8	2.3	3.0	3.0	6.0	4.8	6.7	6.3	10.2	21.4	11.8	17.0	3.8	119.8

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65).

C. Irrigation and Drainage Facilities :

(i) (a) & (b) : Banana are grown as perennial crop in the high level *Padugai* lands without any direct irrigation, as rainfed crop. Deep trenches are provided between plots for seepage of water. However, two oil engines are available from the year 1953 for irrigating the varieties especially the Banana clones of acuminata origin during summer months. (ii) Nil. Drainage is a difficult problem especially during North-East Monsoon period (Oct.-Dec.), when water table is very high.

D. Soil type and Soil analysis :

(i) Broad soil type : Depth-1.5 m. to 1 8 m. ; Colour—Brown to Black ; Structure-Heavy alluvial clay.

(ii) Chemical analysis :

Description of samples	Soil at 30 cm.	Soil at 60 cm.	Soil at 90 cm.
Moisture	4.56%	5·06%	4.28%
Nitrogen	0.056%	0.600%	0.043%
Total P_2O_5	0.112%	0.105%	0.074%
Available P_2O_5	0.025%	0.012%	0.009%
Total K_2O	0.040%	0.384%	0.355%
Available K_2O	0.013%	0.012%	0.014%
pH.	7.5		

(iii) Mechanical analysis : N.A.

E. No. of Experiments :

Banana—9 ; Total=9

2. Regional Research Station, Aduthurai.

A. *General Information* :

(i) In Kumbakonam taluka of Thanjavur district, 0.8 km. from Aduthurai R. S. with Lat.-11° N./Long.—79°-30′ E./Alt.-19.5 m. above m.s.l. The topography of the experimental area is plain (level ground). (ii) It represents the Cauvery old delta tract. (iii) Established in 1922. (iv) The normal cropping pattern is (a) Kuruvai (First crop)—June to September (b) Thaladi (Second crop)—Sept. to February-March (Paddy). (c) Samba (Single crop)—July to February. (d) Summer—March to June-Cotton, pulses & vegetables. (v) Conducting experiments on breeding, agronomy, soil science, mycology and entomology aspects is the main programme of research.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
5.3	0.8	0.2	0.5	0.3	1.5	0.5	1.5	2.7	6.1	3.3	0.8

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
2.3	5.0	3.0	5.9	6.7	6.3	6.3	10.2	21.4	11.7	17.0	3.8	121.5

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65).

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) Irrigation facilities are available from the inception of the farm in 1922. (ii) There is a proper drainage system.

D. *Soil type and Soil analysis* :

(i) Broad soil type : (0-50/62.5 cm)—Brownish black, clay or sandy clay, hard on drying, neutral in reaction. (50/62.5-150cm.)—Brown, sandy, loose, neutral in reaction with dark brown strains. (150 cm.-180 cm.)—Light brown, stiff clay, hard on drying with low permeability. The boundary is gradual and the cultivable layer ranges from 0—40 cm./ 0—60 cm.

Depth :	0-15 cm.	15-30 cm.	30-47.5 cm.	47.5-62.5 cm.
Colour :	Brownish	Brownish	Light brown	Light brown
Structure :	Blocky	Blocky	Single grain	Single grain

	62.5-90 cm.	90-120 cm.	120-150 cm.	150-180 cm.
	Brown	Brown	Brown	Brown
	Single grain	Single grain	Single grain	Single grain

(ii) Chemical analysis :

Sl. No.	Particular of constituents analysed.	Depth in cm.							
		0-15	15-30	30-47.5	47.5-62.5	62.5-90	90-120	120-150	150-180
1.	Moisture %	5.15	5.37	4.77	3.88	4.16	5.64	3.98	4.35
2.	Loss on Ignition%	6.93	4.69	3.86	2.28	1.85	0.70	3.67	6.16
3.	Insolubles %	69.66	69.68	75.98	76.35	8.81	77.29	72.56	71.14
4.	Fe_2O_3 %	9.05	8.10	4.91	4.35	5.18	4.55	4.01	5.50
5.	Al_2O_3 %	8.52	8.80	12.01	11.82	7.33	7.84	11.04	10.79

6.	Total N %	0.066	0.076	0.074	0.077	0.082	0.080	0.074	0.072
7.	Total P_2O_5 %	0.056	0.068	0.057	0.033	0.092	0.123	0.125	0 230
8.	CaO %	1.170	1.080	1.150	1.100	0.940	1.210	1.150	0.950
9.	MgO %	0.590	0.730	0.890	1.010	0.570	0.820	0.690	0.510
10.	Total K_2O %	0.470	0.610	0.640	0.870	0.460	0.230	0.850	0.810
11.	Available N in Kg/ha.	219.52	203.84	172.48	125.44	94.08	94.08	85.12	94.08
12.	Available P_2O_5 in Kg/ha.	4.93	3.14	3.14	8.06	3.14	9.41	5.03	8.16
13.	pH.	6.9	7.3	7.8	7.9	8.1	8.0	8.0	7.8
14.	E.C. in Millimhos per cm.	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
15.	Organic Carbon %	0.66	0.58	0.18	0.17	0.09	0.10	0.10	0.19
16.	Total Base Exchange Capacity	32.6	22.2	22.5	20.8	31.4	32.2	30.3	32.5
17.	Exchangeable Calcium	18.0	18.5	19.2	18.8	16.8	23.2	22.0	20.6
18.	Exchangeable K	3.4	3.5	4.2	3.0	3.4	4.3	3.1	2.9
19.	Exchangeable Mg.	1.64	1.58	1.49	1.58	1.56	1.61	1.58	1.63
	Phosphate Fractions								
20.	$Al_2(PO_4)_3$	3.75	3.10	3.90	5.40	3.25	20.90	24.00	36.00
21.	$Fe_2(PO_4)_3$	9.0	11.0	7.5	7.1	7.5	3.0	11.5	5.0
22.	$Ca_2(PO_4)_3$	2.8	20.5	7.5	18.0	18.8	9.3	7.8	14.3
23.	Exchangeable P_2O_5	2.5	2.5	2.0	2.8	6.5	17.3	18.8	20.8
24.	PO_4-Fixing Capacity	78.4	62.2	27.1	32.5	27.1	35.2	13.6	51.4

(iii) Mechanical analysis :

		Depth in cm.							
Sl. No.	Particular of constituents analysed.	0-15	15-30	30-47.5	47.5-62.5	62.5-90	90-120	120-150	150-180
1.	Clay%	42.3	43.5	38.0	35.0	30.0	30.8	30.8	40.0
2.	Silt %	17.8	16.5	16.0	12.3	10.0	8.0	10.2	15.0
3.	Fine sand %	26.9	24.4	28.1	27.3	39.4	44.5	43.5	23.8
4.	Coarse sand %	12.7	15.4	12.6	14.3	13.7	10.8	10.8	16.6

E. *No. of Experiments* :

Paddy—123 and Cotton-3 ; Total=126.

3. Rice Research Station, Ambasamudram.

A. *General Information* :

(i) In Ambasamudram taluka of Tirunelveli district, 3 km. from Ambasamudram R. S. with Lat.-8°.42′ N./Long.-77°.28/E. /Alt.-65.2 m. above m. s.l. The experimental area is situated in the outskirts of Ambasamudram town panchayat. The site is flanked by Ambasamudram-Urkad road on the northern side and the channels branching from the Nathiyunni canal on the other three sides viz. East, West and South. The gradient is from West to East. (ii) The station represents the ayacut, spread over the Tirunelveli district irrigated by the Thambraparani irrigation system. (iii) Established in 1937. (iv) It is a typical double cropping area. A short duration Paddy strain is grown as the first crop (Kar i.e. June to September). In the second crop (Pishanam i.e. October to March) medium or long duration Paddy strain is grown. After the harvest of the second crop, green manure crop is raised to meet the green leaf requirements of the next Kar crop. (v) (a) Evolution of non-shedding and non-lodging strains. (b) Evolution of blast resistant strains. (c) Evolution of high fertility strains. (d) Evolution of ASD 1 type of strain possessing seed dormancy. (e) Trial of new strains and varieties. (f) Investigation for fixing up realistic yardstick with reference to green leaf and fertilizer application. (g) Study of cross progenies.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
9.5	2.5	1.3	3.0	2.7	2.2	8.1	0.8	4.5	2.3	1.7	0.6

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
3.2	2.0	0.9	0.4	1.8	2.0	3.4	13.3	13.4	12.6	8.8	2.3	103.3

(Av. fortnightly rainfall in cm.; based on the data for the period 1960-65).

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) Irrigational facilities are available ever since the station started. (ii) Drainage is not a problem because of natural drainage due to the gradient.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Sandy loam ; Depth-60 cm. ; Colour-Light brown.
(ii) Chemical analysis :- (Done in 1965) N-188 ; P_2O_5 -17.9 ; pH.-5.1.
(iii) Mechanical analysis :— N.A.

E. *No. of Experiments* :

Paddy—16 ; Total=16.

4. Govt. Cinchona Plantation, Anamallais.

A. *General Information* :

(i) In Coimbatore district, nearest R. S.—Pollachi, situated at an Alt.-900 m. The general topography of the experimental area is undultaing, (ii) It represents hilly tract. (iii) Established in 1960. (iv) Single cropping pattern is adopted since most of the crops, on which research work is done, are perennial. (v) The studies on the medicinal and aromatic plants include cultural, botanical, agronomical, chemical and processing problems. Regional preference of the various crops to different elevations is also studied. Adoptative research is also one of the items of study in order to commercialise cultivation of the various medicinal and aromatic plants in the plantations of the Cinchona Department.

B. *Normal Rainfall* :

Total annual rainfall is about 500 cm.

(Years on which the figure is based is N.A.)

C. *Irrigation and Drainage Facilities* :

(i) (a) The irrigation facilities are available from the commencement of the farm. (b) Irrigation is done from mountain streams. (ii) Proper drainage system exists.

D. *Soil type and Soil analysis* :

(i) Broad soil type-Lateritic loamy soil.

(ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of Experiments* :

Daturia Innoxia—1 ; Total=1.

5. Agricultural Rearch Station/(M.A.E. Centre), Bhavanisagar.

A. *General Information* :

(i) In Gobichettipalayam taluka of Coimbatore district, 35.2 km. from Mettupalayam R.S. with Lat.-11° 29′ N/Long.-77° 8′ E/Alt.—256.0 m. Except experiments on soil conservation, the areas for other experiments are chosen in such a way that the fields are levelled. (ii) The area is subject to the vagaries of both the Monsoons. The soils are shallow, poor and of an open nature with good drainage but the moisture retentivity and soil fertility are poor. (iii) Established in 1955. (iv) First season—cereal or Tobacco, 2nd season—Groundnut, second year—Cotton. This is the best rotation found by experimentation. (v) Varietal, agronomical and biological experiments on Paddy, Groundnut, Chillies, Sorghum and pulses.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
0.3	0.2	0.0	5.4	0.6	1.3	2.2	3.0	2.8	3.7	0.9	3.7

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
3.7	2.4	2.1	4.3	2.5	2.2	5.6	13.4	6.7	2.9	5.3	2.8	78.0

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b): Since the inception of the farm, irrigation facilities are available. (ii) As the soils are open porous type, no special drainage system is necessary.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Depth-15 cm. to 90 cm. ; Colour—Reddish ; Structure—75% coarse fraction and 25% fine fraction.

(ii) Chemical analysis :

Sl. No.	Various constituents	Percentage	Sl. No.	Various constituents	Percentage
1.	Moisture	3.93	8.	Organic Carbon (Co_2)	0.576
2.	Loss on Ignition	4.04	9.	Phosphoric acid total (P_2O_5)	0.115
3.	Insolubles	83.08			
4.	Solubles (by difference) Iron (Fe_2O_3), Alumina (Al_2O_3)	13.73	10.	Sulphuric acid	—
			11.	Nitrogen (N)	0.0648
5.	Lime (CaO)	1.57	12.	Available Potash (K_2O)	0.8252
6.	Magnesia (MgO)	1.09			
7.	Potash total (K_2O)	0.633	13.	Available Phosphoric acid (P_2O_5)	0.0191

(iii) Mechanical analysis :

Sl. No.	Various constituents	Percentage	Sl. No.	Various constituents	Percentage
1.	Clay	27.38	4.	Coarse sand	20.4
2.	Silt	12.39	5.	Acid solubles	3.97
3.	Fine sand	36.22	6.	Total	100.00
				pH	7.5—8.5

E. *No. of Experiments* :

Jowar—4, *Bajra*—4, *Ragi*—18, Cotton—17, Groundnut—11 and Gingelly—1 ; Total=55.

6. Agricultural College & Research Institute (Central Farm), Coimbatore.

A. General Information :

(i) In Coimbatore taluka of Coimbatore district, 2.4 km. from North Coimbatore R.S. with Lat.-11° N./Long.-77° E./Alt.-427m. above m.s.l. The topography of the experimental area is levelled The fields with areas ranging from 0.4 to 2·0 ha. have bunds in between the fields. (ii) Wet lands, garden lands and dry lands representing the central districts of Tamil Nadu State. (iii) Established in 1907. (iv) Cholam, Cotton, Paddy, Ragi and fodder crops. (v) Research on all aspects.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
0.7	0.1	0.1	0.5	2.9	0.6	1.2	2.8	4.3	4.6	1.0	1·3

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
7.2	2.5	2.6	0.7	1.4	1.2	3.0	13.3	5.0	3.1	5.7	0.8	66.6

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Yes, since 1907. (ii) Yes, there is a proper drainage system.

D. Soil type and Soil analysis :

(i) Broad soil type :

	Heavy black cotton soils	Red soils
Colour	Black	Red
Depth	1.5 to 1.8 m.	0.6 to 0.9 m.
Structure	Clay	Loam

(ii) Chemical analysis & (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—52, *Jowar*—29, *Ragi*—11, *Bhindi*—10, Bitter gourd—8, Brinjal—9, Field Beans—3, Sweet Potato—3, Tapioca—2, Tomato—1, Cotton—44 and Castor—2 ; Total=174.

7. Cotton Breeding Station, Coimbatore.

A. General Information :

(i) and (ii) Same as for Agriculture College and Research Institute (Central Farm), Coimbatore (iii) Initial work started in 1907 but intensified from 1920. (iv) (a) Winter Cotton-irrigated Summer *Cholam*. (b) Winter Cotton—irrigated *Cumbu*. (c) Rainfed Cotton-*Cholam* or Bengal Gram in the following year. (v) Breeding of high yielding and superior quality Cotton strains for both irrigated and unirrigated Cambodia and rainfed *Karunganni* Cotton besides agronomic experiments on Cotton to fix schedule of treatments for maximising Cotton production and fundamental aspects.

Normal Rainfall :

Same as for Agriculture College and Reseach Institute (Central Farm), Coimbatore.

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Yes, since 1920 and expanded in subsequent years. (ii) Yes.

D. Soil type and Soil analysis :

(i) (a) Broad soil types :	Red loam	Black clay soil
(b) Depth	2 m.	1.5-1.8 m.
(c) Colour	Deep red to light	Black
(d) Structure	Good loamy	Porous clay

(*ii*) *Chemical analysis* :

(ii) Moisture—3·81%, Nitrogen (N)—0·0770%, Phosphoric acid (P_2O_5)—0·0725%, Potash (K_2O)—0·5722%, Iron (Fe_2O_3) and Alumina (Al_2O_3)—9·75%, Lime (CaO)—1·26%, Megnesia (MgO)—0·20%.

Mechanical analysis :

(iii) Clay—30·30%, Silt—11·46%, Course sand—18·94%, Acid Soluble (By Difference) —7·11%, Fine sand—32·19% ; Total—100·00.

E. *No. of Experiments* :

Jowar—2, Brinjal—1, Cotton—11 and Chillies—6 ; Total=20.

8. Millet Breeding Station, Coimbatore.

A. *General Information* :

(i) and (ii) Same as for Agriculture College and Research Institute (Central Farm), Coimbatore. (ii) Established in 1923. (iv) (a) Kharif season : *Cholam, Cumbu,* Ragi, Maize, Varagu, *Tenai, Kudiraivali,* Redgram, Greengram, Blackgram, Cowpea, *Dablab* and Horse Gram. (b) Rabi season : Wheat, *Panivaragu* and Bengal Gram. (c) Summer Season : *Cholam, Cumbu,* Ragi, *Tenai,* Maize, Redgram, Blackgram, Greengram and Cowpea. (v) Research on all aspects.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June		July	
1	2	1	2	1	2	1	2	1	2	1	2	1	2
0·38	0·15	0·07	0·02	0·33	0·42	0·84	3·01	4·19	2·11	0·88	0·90	2·03	2·88

Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	
1·69	1·42	1·41	3·89	6·01	8·17	6·74	3·03	5·86	2·26	58·69

(The period on which the rainfall data is based is not available).

C. *Irrigation and Drainage Facilities* :

(i) (a) The fields are irrigated from tubewells of 61 m. to 91 m. depth. Water level is 24 m. below ground level and sub-mersible pumps are used for lifting water. (b) Tube-well irrigation. (ii) There is no drainage problem on this farm. All the excess water can be drained into storm water channel running along the western side of the farm.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Depth : 0-28 cm. :—Sandy loam to sandy clay loam, dark reddish brown (2·5 YR3/2),granular, moderately hard when dry, friable when moist, slightly sticky and plastic. 28-56cm :—Clay loam,dark reddish brown (2·5 HR 3/2), sub-angular blocky, moderately hard when dry, friable when moist. 56-81cm :—Coarse gravelly. The soil is mixed with overage ferruginous concertion. 81-112 cm :—Clay loam, dark reddish brown (2·5 HR 3/2), hard when dry, sticky and plastic (Classified as *Palathurai* series by the All-India Soil Survey and land Use Organisation).

(ii) Chemical analysis :

	Depth in cm.			
	0-28	28-56	56-81	81 to 112
pH.	8·0	8·1	8·3	8·2
EC	0·45	0·35	0·25	0·50
Total Nitrogen	0·061	0·058	0·038	0·038
Available N in Kg/ha.	111	363	256	217
Total P_2O_5	0·07	0·07	0·06	0·06
Available P_2O_5 in Kg/ha.	12·5	10·5	6·3	5·8
Total K_2O	0·592	0·608	0·582	0·628

Lime (CaO)	0·468	0·524	0·484	0·456
Magnesia (MgO)	0·024	0·056	0·064	0·082
Total Solids	0·01	0·07	0·05	0·30
Bicarbonates	0·007	0·009	0·006	0·007
Chlorides	0·012	0·008	0·001	0·013
Base Exchange capacity	14·2	14·3	12·2	13·6
Exchangeable Ca	2·6	2·8	2·1	2·3
Organic matter	0·26	0·34	0·24	0·22

(iii) Mechanical analysis :	Depth in cm.			
	0-28	28-56	56-81	81-112
Clay	23·2	25·8	29·0	32·1
Silt	7·0	6·3	7·2	6·9
Fine sand	29·3	28·6	25·5	22·9
Coarse sand	42·8	34·6	26·9	28·2
Water holding capacity	53·2	36·2	31·5	30·6
Pore space	46·3	49·7	38·8	42·8
Sticky point	12·9	13·2	11·8	12·2
Volume Expansion	9·6	10·2	9·4	9·8
Apparent Specific Gravity	1·34	1·32	1·24	1·26
True Specific Gravity	2·28	2·16	2·04	2·04

E. *No. of Experiments* :

Jowar—9, *Bajra*—3, —*Ragi*—4 and Field Beans—1 ; Total=17.

9. Paddy Breeding Station, Coimbatore.

A. *General Information* :

(i) In Coimbatore taluka of Coimbatore district, 7 km. from Coimbatore Jn. with Lat.—11° N./Long.—77° E./Alt.—428·5 m. above m. s. l. In the experimental area, the land is uniformly levelled and plots of 200 to 400 sq· m. in size have been laid out. (ii) It represents wet cultivation to cater to the needs of central districts—viz. Coimbatore, Salem, Dharmapuri and part of Tiruchirapally. (iii) Established in 1913. (iv) Paddy after Paddy is the normal cropping pattern. (v) Rice improvement—breeding and agronomical aspects are included in research work

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June		July	
1	2	1	2	1	2	1	2	1	2	1	2	1	2
0·6	0·5	0·0	0·5	1·8	0·9	0·9	1·8	4·3	4·6	1·6	1·6	6·9	3·3

Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	
3·1	1·1	1·4	1·5	3·2	12·6	5·8	2·5	6·7	1·1	68·3

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960 to 1965).

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) Yes, since 1961. (ii) Yes. No problem of water logging.

D. *Soil type and Soil analysis* :

(i) Broad soil type—Black cotton soil ; Depth—1·2 to 3 m. ; Colour—Black ; Structure—Clay loam. (ii) Chemical analysis : Organic matter content—0·83% ; Total N—0·078% ; Available P_2O_5—13·4 Kg/ha. ; Available K_2O—459·2 Kg/ha. (iii) Mechanical analysis : Coarse sand—15·3% ; Fine sand—7·2% ; Silt—21.3% ; Clay—56·2%.

E. *No. of Experiments* :

Paddy—9 ; Total=9

10. Central Sugarcane Research Station, Cuddalore.

A. General Information :

(i) In Cuddalore taluka of South Arcot district, 3 km. from Cuddalore N.T. (Tirupapuliyur) R.S. with Lat.-11·5° N./Long.-79·5° E./Alt.-4·6 m. above m.s.l. The topography of the experimental area is levelled, very gently slopping towards the river Pennar. (ii) The soils of the farm are of river alluvium in nature. (iii) Established in 1957. (iv) The normal cropping pattern is Sugarcane—Sugarcane (Ratoon)—Green manure-Paddy (three years). (v) To improve the yield and quality of cane by selecting high yielding varieties with good quality, suitable for different regions and also to work out proper manurial and cultural schedules along with solving problems on the control of pests and diseases of Sugarcane.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
5·7	0·7	0·6	0·3	0·0	1·4	0·2	0·3	0·7	1·0	2·5	2·1

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
3·5	6·5	5·0	15·0	5·7	6·7	6·8	9·7	11·7	27·3	13·9	6·4	133·7

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960 to 1965).

C. Irrigation and Drainage Facilities :

(i) & (ii) Yes.

D. Soil type and Soil analysis :

(i) Broad soil types—Clayey, Sandy loam and Sandy; Depth—152·4 cm.; Clour—Light brown to brown ; Structure—Prismatic, granular, structureless.

(ii) Chemical analysis :	Clayey	Sandy loam	Sandy
pH.	7·6	7·6	7·0
E.C. m.m./cm.	0·3	0·4	0·4
Organic Carbon%	0·2	0·3	0·2
Total N%	0·04	0·05	0·03
Available N	Poor	Poor	Poor
Available P	Medium	Medium	Medium
Available K	Medium	Medium	Medium
BLC/Day	60	52	37

(iii) Mechanical analysis :	Clayey	Sandy loam	Sandy
Clay%	32 4	15·2	6·9
Silt%	15·0	13·3	4·0
Fine sand%	39·1	54·7	49·6
Coarse sand%	8·9	16·4	37·4

E. No. of Experiments :

Sugarcane—60 ; Total=60

11. Govt. Cinchona Plantations, Dodabitta (Ootacamund).

A. General Information :

(i) In Nilgiri Distt. (ii) to (v) Details—N.A.

B. Normal Rainfall to D. Soil type and Soil analysis : Details—N.A.

E. No. of Experiments :

Digitalis purpuria—2 ; Total=2

12. Sugarcane Research Sub-Station, Gudiattam.

A. General Information :

(i) In Gudiattum taluka of North Arcot district, 0.6 km. from Melalathur R. S. with Lat.-12°-40′ N./Long.-78°-40′ E./Alt. 268 m. above m.s.l. The topography of the experimental area is generally plain with a mild decline from West to East and from North to South. (ii) It represents the Garden land type of tract. (iii) Established in February, 1955. (iv) This being a jaggery area, Sugarcane is being planted from November-December to May-June. Other crop grown in rotation with Sugarcane are Paddy, Groundnut, Ragi, Banana, Cotton, etc. (v) Varietal, cultural, manurial and weedicidal trials on Sugarcane is the main research work.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
0.7	0.4	0.1	0.0	0.2	0.2	0.7	1.0	2.3	5.5	2.6	3.3

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
3.2	9.3	4.1	7.6	6.4	10.7	7.5	6.4	10.1	3.9	3.4	0.4	89.9

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) Available since the inception of this research station. (b) The crops are irrigated from two open wells and one bore well. Gudiattam tank also supplies water from October—November to January every year. (ii) Yes, there is a natural gradient from West to East and from South to North which facilities drainage.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam to loamy ; Depth-1.22 m. ; Colour-Black ; Structure-Granular. (ii) Chemical analysis : Nitrogen-Low; Phosphorus-Low to medium; Potash-Medium to high. (iii) Mechanical analysis : Clay-35% ; Silt-15% ; Sand (coarse & fine) etc.-50%.

E. No. of Experiments :

Sugarcane—12 ; Total=12

13. Fruit Research Station, Kanyakumari.

A. General Information :

(i) In Kanyakumari district, nearest R. S. Tirunelveli, experiments are conducted on 12.8 ha. of the experimental area. (ii) N.A. (iii) Established in 1922. (iv) Mango, Guava, Sapota, Grapes, Crotens, Chiku, Jack, Coconut, etc. (v) Breeding and agronomic experiments.

B. Normal Rainfall :

6 m.m. rainfall in July, 1972.

C. Irrigation and Drainage Facilities :

(i) (a) There is one reservoir attached with Electric-motor. (b) Two wells are functioning. (ii) Drainage facilities are available.

D. Soil type and Soil analysis :

(i) Broad soil type : Colour—Red ; Depth-3.89 m. (ii) Chemical analysis and (iii) Mechnical analysis : N.A.

E. No. of Experiments :

Mango—2 ; Total=2

14. Gingelly Research Station, Karur.

A. General Information :

(i) In Karur taluka of Tiruchirapalli district, 1.6 km. from Karur R.S. with Lat.-10.58° N./Long.-78.7° E./Alt.-118.5 m. above m.s.l. There is a general gradient from West to East with small gullies in certain places. In addition, a lesser fall in the level of the fields is noticed as one proceeds towards North. (ii) Contiguous parts of Trichy, Madurai and Salem districts of Tamil Nadu State with well drained soil and receiving low rainfall. (iii) Established in 1959. (iv) Gingelly (rainfed during July to December) followed by pulse crops like Horsegram (during January-March). (v) Conducting field experiments on Gingelly on the following lines : (a) Collection of local and other state varieties of *Sesamum* and isolation of high yielding types with high oil content. (b) Selection work in promising varieties and hybrids to evolve superior strains possessing economic attributes.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
1.5	0.1	0.1	0.0	0.2	0.1	2.1	2.8	2.7	3.4	0.8	0.1

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
2.2	4.3	2.0	7.3	3.3	7.7	6.2	6.2	3.7	2.5	5.2	1.6	66.3

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Yes. An open well capable of commanding above 1 ha. is present. (ii) Yes.

D. Soil type and Soil analysis :

(i) Broad soil type-Sandy loam strewn with pebbles ; Depth-ranging from 10 cm. to 2 m. ; Colour-Red ; Structure-Coarse fractions appear to pre-dominate.

(ii) Chemical analysis :

	First block (analysed in 1959)	New block (analysed in 1966)
pH.	7.5	8.1
E.C.	0.7	0.2
N	220 Kg/ha.	141 Kg/ha.
P_2O_5	4.0 Kg/ha.	4.0 Kg/ha.
K_2O	278 Kg/ha.	112 Kg/ha.

(iii) Mechanical analysis : N.A.

E. No. of Experiments :

Groundnut—3 and Gingelly—6 ; Total=9

15. Regional Research Station, Kovilpatti.

A. General Information :

(i) In Kovilpatti taluka of Thirunelveli district, 1.6 km. from Kovilpatti R. S. with Lat.-9°-12′ N/Long.-77°-53′ E./Alt.-166.4 m. The topography of the experimental area can be classified into (a) Black soil : The area is divided into 22 fields. The soil is black and free $CaCO_3$ is generally present in the soil in the form of *kankar*. It cracks deeply in summer. The depth of the soil varies from 152 to 213 cm. There is abundance of lime in the soil and (b) Red Soil : The area is divided into11 fields. The plough depth of soil is brown and below 30 cm., it is red. The depth of the soil varies from 90 to 120 cm. (ii) Two types occur. Black soil occurs in close proximity to red soil. Black soil is heavier containing more than 50% of clay. Red soil is clay loam in character. The black soil is more fertile than the red variety. (iii) Established as Agricultural Research Station in 1901 and upgraded as Regional Research

Station in 1962. (iv) Raising of rainfed Cotton and millets during North-East Monsoon season i.e. from November to June. Irrigated millets, Cotton and Chillies are rotated through out the year under irrigated conditions in the fields with facilities for irrigation. (v) Evolving improved varieties of Cotton, millets and determining suitable manurial and plant protection schedules.

B. *Normal Rainfall* :

Jan.	Feb.	March	April	May	June	
1 2	1 2	1 9	1 2	1 2	1 2	
3.7 0 8	0.2 1.0	0.9 2.5	6.1 3.5	2.8 2.4	2.2 0.1	
July	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Total**
1 2	1 2	1 2	1 2	1 2	1 2	
1.0 4.5	1.2 2.1	2.9 1.7	4.9 9.1	10.8 7.4	3.6 0.6	76.0

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) Major portion of the red soil block from 1901 and a small portion of the black soil block from 1952 are irrigated. (ii) The water drains through surface, run off the fields.

D. *Soil type and Soil analysis* :

(i) Broad Soil types :

	Black Soil			Red Soil		
Depth :	0-90 cm.	90-152 cm.	152-213 cm.	0-30 cm.	30-90 cm.	90-120 cm.
Colour :	Black contains kankar.	Black contains more of kankar and gypsum.	Black or grey with white patches.	Brown contains small quartz stones.	Red contains small quartz stones.	Yellowish brown or yellowish red contains stones and gravel.
Structure :	Crumb, clayey	Sticky & moist.	Very hard bed of kankar with little of soil	Crumb	Single Grain, dry and loose	Single grain, dry and loose.

(ii) Chemical analysis : (analysed in 1965)

Sl. No.	Constituents		Black Soil	Red Soil
1.	Moisture	percent	10.00	7.00
2.	Loss on ignition	,,	6.00	4.00
3.	Insoluble mineral matter	,,	72.00	82.00
4.	Soluble mineral matter	,,	22.00	14.00
5.	Iron (Fe_2O_3)	,,	9.00	8.50
6.	Alumina (Al_2O_3)	,,	8.00	5.50
7.	Lime (CaO)	,,	3.80	1.10
8.	Magnesia (MgO)	,,	1.90	1.20
9.	Total Nitrogen (N)	,,	0.04	0.05
10.	Total Phosphoric acid (P_2O_5)	,,	0.05	0.09
11.	Total Potash (K_2O)	,,	0.50	0.38
12.	Av. P_2O_5	,,	0.02	0.03
13.	Av. K_2O	,,	0.03	0.05
14.	Total soluble salts	,,	0.08	0.06
15.	pH		7.8	7.5
16.	EC (millimhos/cm.)			0.7

(iii) Mechanical analysis : (analysed in 1965)

Sl. No.	Constituents		Black soil	Red soil
1.	Clay	Percent	52	28
2.	Silt	,,	12	4
3.	Fine sand	,,	14	17
4.	Coarse sand	,,	17	49
5.	Acid solubles	,,	5	2

E. *No. of Experiments* :

Jowar—9, *Bajra*—11, *Ragi*—2, Cotton—23, Corriander—1, Safflower—3, Chillies—1 and Mixed Crops—2 ; Total=52.

16. Agricultural Research Station, Manapparai.

A. *General Information* :

(i) In Tiruchirapalli district. (ii) to (v) Details N.A.

B. *Normal Rainfall* to D. *Soil type and Soil analysis* : Details N.A.

E. *No. of Experiments* :

Cotton—3 ; Total=3.

17. Deep Water Rice Research Station, (Talainagar) Nagapattinam.

A. *General Information* :

(i) In Thanjavur district. (ii) to (v) Details N.A.

B. *Normal Rainfall* to D. *Soil type and Soil analysis* : Details N.A.

E. *No. of Experiments* :

Paddy—2 ; Total=2

18. Agricultural Research Station, Nanjanad.

A. *General Information* :

(i) In Ootacamund taluka of Nilgiri district, 17 km. from Ootacamund R. S., situated at an Alt.—2194.6 m. The experimental area is evenly terraced and Potato is grown in terraced lands at this station. (ii) It represents Laterite tract. (iii) Established in 1917. (iv) (a) Summer : Potato-Buckwheat, (b) Autumn : Potato-Lupin, (c) Winter : Potato-Lupin. (v) Varietal and agronomical experiments on Potato.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
1.4	0.2	0.2	0.9	0.3	1.9	2.8	4.8	5.6	10.3	5.9	6.2

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
28.2	11.4	19.5	8.4	5.2	8.3	5.9	12.0	7.3	4.1	5.0	2.2	158.0

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) : Only natural stream irrigation is available for the winter crop. (ii) Yes, proper drainage system exists.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Depth—91 cm. ; Colour—Red ; Structure—Loamy.

(i) Chemical analysis : Moisture—4.70% ; Loss on ignition—14.04% ; Insolubles—55.22% ; Iron—9.95% ; Alumina—14.62% ; Lime—0.07% ; Magnesia—0.10% ; Potash (Total)—0.13% (0.015% available) ; Soda—0.41% ; Carbon-di-oxide—0.04% ; P_2O_5 (Total)—0.07% (0.009% available) ; Sulphuric acid—0.08% ; Nitrogen -0.32.

(iii) Mechanical analysis : Fine gravel—6.5% ; Coarse sand—7.5% ; Silt—16.5% ; Fine silt—29.9% ; Fine sand—16.5% ; Clay—16.9% ; Moisture, etc.—6.3%.

E. No. of Experiments :

Potato—78, Groundnut—1 and Mixed crops—7 ; Total=86.

19: Agricultural Research Station, Palur.

A. General Information :

(i) In Cuddalore taluka of South Arcot district, 8 km. from Nellikuppam R.S. with Lat.-11° 45′ N/Long.-79° 40′/Alt.-13·4 m. The general topography of the experimental area is plain. Loamy soil in garden lands and clayey in wet lands. (ii) It represents plain loamy soil tract. (iii) Established in 1905. (iv) Wet lands : In Sornavari, Samba and Navarai seasons—Paddy. Garden lands : May to Sept.-Ragi, Cumbu and vegetables ; Oct. to Dec. (North-East Monsoon)—Fallow or Sunnhemp ; Jan. to April—Groundnut, Ragi, vegetables and Cotton. Sugarcane grown as one year crop from January. (v) Agronomical experiments on the above crops.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
5·7	0·4	0·4	0·3	0·0	0·7	0·6	0·6	1·2	0·8	1·9	1·6

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
3·3	0·7	4·7	16·5	5·5	6·2	7·3	12·5	20·8	14·4	16·1	3·5	125·7

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65).

C. Irrigation and Drainage Facilities :

(i) (a) Irrigational facilities are available since 1905. (b) Tube wells are the sources of irrigation. (ii) Drainage facilities are available.

D. Soil type and Soil analysis :

(i) Broad soil type—Sandy loam ; Other details—N.A. (ii) Chemical analysis and (iii) Mechanical analysis : Information N.A.

E. No. of Experiments :

Paddy—15 and Cotton—1 ; Tatal=16

20. Agricultural Research Station, Pattukkottai.

A. General Information :

(i) In Thanjavur district, nearest R.S. is Pattukkottai with Lat. 79° E/Long. 20° N./Alt. 20 12 m. above m.s.l., The general topography of the experimental area is flat. (ii) Sandy loam tract. (iii) Established in 1935 (iv) Paddy after Paddy is the cropping pattern. (v) (a) Multiple cropping experiments. (b) Agronomical experiments.

B. Normal Rainfall :

Average annual rainfall=48 cm.

(The period on which the figure is based :—1951 to 61)

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Proper irrigation and drainage facilities are available since 1937. Cauvery Mettur Project canal and wells are the sources of irrigation. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis:

(i) Broad soil type : Sandy loam soil; Depth—1·83 m. to 2·44 m. ; reddish in colour and sandy in structure. (ii) Chemical analysis : N-Low; P-low ; K-low. (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—6 ; Total=6

21. Fruit Research Station, Periyakulam.

A. General Information :

(i) In Periyakulam taluka of Madurai district, 43 km. from Kodai Road R.S. ; General topography of the experimental area is uniform, slanting from North to South. (ii) It represents red soil tract. (iii) Established in 1958. (iv) Perennial crops. (v) (a) Varietal collection, root-stock trials, manurial trials, study of economics of cultivation, studies in picking, packing and storage of Mango, Citrus and Grapes. (b) Blossom biological studies, hybridisation, trial of off-season bearing mangoes. (c) Study of budspots and study of orchard cultural practices and collection of seedlings of Citrus. (d) Trials on training methods, trials on thinning berries, irrigation trials on Grapes. (e) Varietal collection of miscellaneous fruits.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
1·0	0·3	0·4	3·4	4·5	2·7	3·4	3·7	4·3	2·2	0·9	0·7

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
2·2	3·3	1·1	3·0	2·4	3·5	3·7	16·0	8·6	2·2	5·7	1·7	80 9

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Yes, irrigation facilities are available since 1958. (ii) The soil is well drained.

D. Soil type and Soil analysis :

(i) Broad soil type : Depth—3 m. ; Colour—Red and Structure—Sandy loam.
(ii) Chemical analysis : pH—7·9 to 8·4 ; Soluble salts—0·03% to 0·093%.
(iii) Mechanical analysis : First 0·9 m. is sandy loam but lower depths are clay loam.

E. No. of Experiments :

Cotton—6, Grapes—26 and Mango—2 ; Total=34

22. Groundnut Research Station, Pollachi.

A. General Information :

(i) In Pollachi taluka of Coimbatore district, 8 km. from Pollachi R.S. with Lat.—10°-39′ N./Long.—77°-31′/E./Alt.—270 m. The fields are fairly levelled and uniform. (ii) It represents Pollachi tract. (iii) Established in 1956. (iv) Groundnut under rainfed conditions is raised between April and July followed by Horsegram or Sanai during Sept.-Dec. under rainfed conditions. (v) Improvement of *Pollachi* Red Groundnut.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
0·4	0·0	0·0	0·2	0·0	2·8	2·8	3·8	3·6	6·2	2·6	4·0

July		Aug.		Sept.		Oct		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
10·9	6·4	6·7	0·5	3·5	3·5	5·5	13·8	4·9	2·8	5·3	1·4	91·6

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) Nil. (Rainfed area). (ii) The fields are well drained under natural conditions.

D. Soil type and Soil analysis :

(i) Broad soil type : Red soil ; Depth—15 to 22·5 cm. ; Colour—Red.

(ii) Chemical analysis :

Depth	N	P	K	pH
0—15 cm.	174·779	3·850	266·248	6·8
15—30 cm.	190·461	3·361	253·204	6·9

(Analysed during 1963 ; based on 36 samples).

(iii) Mechanical analysis : N.A.

E. No. of Experiments :

Groundnut—4 and Chillies—3 ; Total=7

23. Castor Research Station, Salem.

A. General Information :

(i) In Salem taluka of Salem district, located about 1.6 km. south-east of Salem Town with Lat.-11.39° N./Long.-78.10° E./Alt.-303.9 m. above m.s.l. The experimental area consists of compact area of 9.01 ha. The fields are even and levelled and there is slight gradient from the East to West. The experimental area is connected by motorable road. (ii) It represents the dry land tract of the Tamil Nadu State and especially the central districts viz., North Arcot, Salem and Coimbatore of the State. (iii) Established in 1960. (iv) Generally in the dry lands, the rainfed crop of Groundnut is raised as the main crop during June-July to Oct.-Nov. season. In the main crop, Castor is grown in lines as a mixed crop. Sometimes along with Castor, few lines of Red Gram or Sorghum may also be grown. This is the normal cropping pattern of the tract. (v) (a) Collection and testing of different varieties and types of Castor and isolating suitable inbreds. (b) Testing the combining ability of suitable inbreds with a view to spot out those possessing maximum expression of hybrid vigour. (c) Large scale production of hybrid Castor for distribution. (d) Evolving short duration strains of Castor by hybridization and selection. (e) Imparting certain marker genes to the standard strains of Castor for easy identification and maintenance.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
0.9	0.1	0.3	0.0	0.0	1.0	1.4	2.2	3.1	8.6	4.6	1.2

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
5.6	5.6	6.4	10.7	8.4	7.4	10.3	11.9	7.2	2.5	3.4	0.8	103.6

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainge Facilities :

(i) (a) & (b) Yes. There are two wells at the Research Station (ii) Yes.

D. Soil type and Soil analysis :

(i) Broad soil type : Depth-91 to 152 cm. ; Colour-Red ; Structure—loamy.

(ii) Chemical analysis : The chemical analysis was carried out in the year 1961. The soil is moderately alkaline in nature. The Nitrogen status of the soil is medium to very low where as Phosphorus status is very low. Tests were not conducted for Potash. The results of the chemical analysis of the representative soil samples of the experimental area are furnished below :

		pH	EC	N	P
Sample-I	0-30 cm.	8·2 (M A.)	0.2 (Hs)	376 Kg/ha. (M)	2.7 Kg/ha. (V.L.)
	30-60 cm.	8.4 (M.A.)	0.2 (Hs)	314 Kg/ha. (M)	3.1 Kg/ha. (V.L.)
	60-90 cm.	8.4 (M.A.)	0.2 (Hs)	172 Kg/ha. (M)	3.6 Kg/ha. (V.L.)
Sample-II	0-30 cm.	7.4 (NI)	0.2 (Hs)	455 Kg/ha. (H)	1.3 Kg/ha. (V.L.)
	30-60 cm.	7.4 (NI)	0.2 (Hs)	392 Kg/ha. (M)	2.2 Kg/ha. (V.L.)
	60-90 cm.	7.4 (NI)	0.2 (Hs)	267 Kg/ha. (L)	0.4 Kg/ha. (V.L.)

N.B.—M.A —Moderately Alkaline, Hs—Harmless, M—Medium, V. L.—Very low, NI—Normal, H—High and L—Low.

(iii) Mechanical analysis :— Not Done.

E. No. of Experiments :

Castor—1 and Groundnut—1 ; Total=2.

24. Sugarcane Research Station, Sirugamani.

A. General Information :

(i) In Tiruchirappalli district, less than 1/4 km. from Sirugamani R. S. with Lat.-10.56° N/Long.-7.54° E./Alt.-78.6 m. above m.s. l, sloping slightly from North to South. (ii) Sandy loam tract. Irrigated by canal water (Flow irrigation). (iii) Established in 1960. (iv) Sugarcane-Daincha-Paddy (2 year rotation). (v) Selection of suitable high yielding variety constistant with quality and to evolve suitable cultural and manurial schedules for Sugarcane.

B. Normal Rainfall :

Jan.	Feb.	March	April	May	June	
1 2	1 2	1 2	1 2	1 2	1 2	
2.5 0.1	0.0 0.0	0.9 0.8	1.5 0.7	1.3 1.4	2.2 1.9	
July	Aug.	Sept.	Oct.	Nov.	Dec.	Tolal
1 2	1 2	1 2	1 2	1 2	1 2	
1.8 3.8	2.1 6.1	4.6 3.6	9.2 9.5	4.4 3.0	4.7 1.6	67.8

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) and (b) Irrigation through canal water from July to March. (ii) Deep trenches will be formed in each field at 30 m. interval for collecting the water and draining it in deep cross channels.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy Loam ; Depth-0.91 m. ; Colour-Brown ; Structure-Stiff. (ii) Chemical analysis : pH.-8.0 ; E.C.-0.34 ; Available N-164.6 Kg/ha. ; Available P-7.2 Kg/ha. (iii) Mechanical analysis : Moisture-1.8% ; Clay-15·8% ; Silt-5.9% ; Fine sand-55.4% ; Coarse sand-20.8%.

E. No. of Experiments :

Sugarcane—10 ; Total=10

25. Cotton Research Station, Srivilliputtur.

A. General Information :

(i) In Srivilliputtur taluka of Ramanathapuram district, 1.6 km. from Srivilliputtur R. S. with Lat.-9°30′ N./Long.-77° 38′ E./Alt.-138 m. above m.s.l. The general topography of the experimental area is flat with plot sizes ranging between 0.10 ha. to 0.40 ha. (ii) Summer Cambodia Cotton tract. (iii) Established in 1950. (iv) The normal cropping pattern is Paddy-Cotton-Paddy. (v) Evolution of a strain of *G.Hirsutum* with a good staple length and spinning of 15.24 m. H.S.C.

B. Normal Rainfall :

Jan.	Feb.	March	April	May	June	
1 2	1 2	1 2	1 2	1 2	1 2	
1.5 2.6	0·6 1.3	1.2 2.6	4.0 3.2	5.2 2.3	0.6 0.7	
July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1 2	1 2	1 2	1 2	1 2	1 2	
2.2 3.9	1.1 1.3	1.6 2.1	4.3 12.1	11.5 8.2	4.5 0.3	79.3

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. *Irrigatian and Drainage Facilities* :

(i) (a) and (b) Yes ; Lift irrigation from wells using electricity. This is supplemented with flow irrigation when water is available in tanks. (ii) Yes, there is a proper drainage system.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Clay loam ; Depth-1.83 m. ; Colour-Black.

(ii) Chemical analysis :

	0-15 cm.	15-30 cm.	30-60 cm.	60-90 cm.
Moisture %	4.75	5.21	5.23	5.49
Nitrogen %	0.068	0.031	0.021	0.018
Available K_2O %	0.025	0.014	0.011	0.012
Available P_2O_5%	0.058	0.016	0.0059	0.0035
Acid soluble %	0.29	—	—	0.20
pH.	8.26	8.23	8.51	8.14
Electrical Conductivity ...	19.10	15.00	16.04	17.47

(iii) Mechanical analysis :

	0-15 cm.	15-30 cm.	30-60 cm.	60-90 cm.
Clay %	35.96	37.46	38.25	39.37
Silt %	11.34	12.24	11.87	12.48
Fine sand %	20.84	19.08	19.49	17.84
Coarse sand %	31.57	22.47	32.04	30.11

E. *No. of Experiments* :

Cotton—11 and Mixed crops—1 ; Total=12.

26. Regional Research Station, Tindivanam.

A. *General Information* :

(i) In Tindivanam taluka of South Arcot district, situated on the Tindivanam Kiliyanur-Pondichorry road, 3.2 km. from Tindivanam R. S. with Lat.-12° 14′ N./Long.-79° 42′E./ Alt.-43.9 m. above m.s.l. The topography of the experimental area is plain. (ii) Red sandy loam tract. (iii) Established in June, 1935. (iv) (a) First year : *Jowar or Varagu* mixed cropping during July-December. (b) Second year : Groundnut and Gingelly (cold weather). (v) (a) Breeding experiments on Groundnut, Gingelly, Castor, *Cholam,* (b) Agronomical experiments on Groundnut, *Cumbu* & Ragi, (c) Effect of chemicals on Groundnut. (d) Entomological investigations on Groundnut, Castor, Gingelly & Ragi. (e) Plant pathological experiments on oilseeds and millets.

B. *Normal Rainfall* :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
2.8	0.2	0.0	0.6	0.0	0.5	0.2	2.5	1.3	2.0	2.5	2.7

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
2.9	8.8	5.4	13.7	4.8	10.5	8.9	12.6	12.1	8.5	7.3	1.2	120.0

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. *Irrigation and Drainage Facilities* :

(i) (a) & (b) Yes, irrigation facilities are available from the start of the Station. (ii) Yes. In the newly acquired area, the drainage system needs a little rectification.

D. *Soil type and Soil analysis* :

(i) Broad soil type : Depth-30cm. to 75 cm. ; Colour-Brown to Red. ; Structure-Granular.

(ii) Chemical analysis :

Constituents	*Percentage*
Moisture	2.38
Loss on ignition	1.88
Insolubles	9.09
Iron	5.24
Aluminia	1.95
Lime	0.51
Magnesia	0.26
Potash	0.08
Phosphoric acid	0.003
Soda	0.23
Sulphuric acid	0.004
Carbon-di-oxide	0.177
Nitrogen	0.029
Available Potash	0.003
pH.	8.27

(iii) Mechanical analysis : N.A.

E. No. of Experiments :

Groundnut—44, Gingelly—8, Castor—4 and Ragi—3 ; Total=59.

27. Rice Research Station, Tirurkuppam.

A. General Information :

(i) In Trivellor taluka of Chingleput district, 1.6 km. from Sevappet Road R. S. with Lat.-13°-4′ N./Long.-80°-15′ E./Alt.-39.5 m. above m.s.l. The slope of the Station is from West to East and South to North. (ii) It is representative of Chingleput and North Arcot districts of the State and forms a distinct zone characterised by a light and open type of soil. (iii) Established in 1942. (iv) Paddy (Sornavari)—April-May to Aug.-Sept., Paddy (Samba)—July-Aug. to Dec.-Jan. ; Paddy (Navarai)—Dec.-Jan. to April-May. (v) (a) Evolution of high yielding strains in Kullakar. (b) Evolution of high yielding strains by hybridization. (c) Evolution of high fertility strains. (d) Evolution of high yielding drought resistant strains. (e) Maintenance of varietal collection of upland rice. (f) Yardstick trials.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June	
1	2	1	2	1	2	1	2	1	2	1	2
1.6	0.8	0.0	0.1	0.2	0.0	0.0	0.6	0.3	2.5	3.9	2.9

July		Aug.		Sept.		Oct.		Nov.		Dec.		Total
1	2	1	2	1	2	1	2	1	2	1	2	
2.8	6.5	6.1	13.9	8.7	9.3	6.6	9.0	25.0	10.8	8.6	2.1	122.3

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) & (b) Yes, irrigation facilities are available from the inception of the station. (ii) Drainage facilities are not available.

D. Soil type and Soil analysis :

(i) Broad soil types : Sandy loam, loam to clay loam ; Colour-Light brown ; Depth.-About 1.8 to 2.1 m. (ii) Chemical analysis & (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—40 and Mixed crops—2 ; Total=42

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 62(27), 63(34), 64(37).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To test the suitability of complex fertilizer from Neyveli Lignite Corporation for Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 6.10.1962/3.11.1962; 8.9.1963/18.10.1963; 18.9.1964/8.11.1964. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M. (vi) Co—25 (late). (vii) Irrigated. (viii) 1 to 2 weedings. (ix) 47 cm., 124 cm., 46cm. (x) 16.3.1963; 18.2.1964; 4.3.1965.

2. TREATMENTS :

6 manurial treatments : T_0=Control (no manure), T_1=33·6 Kg/ha. of N+8 Kg/ha. of P_2O_5, T_2=50·4 Kg/ha. of N+12 Kg/ha. of P_2O_5, $T_3=T_1$, $T_4=T_2$ and T_5=33·6 Kg/ha. of N+28 Kg/ha. of P_2O_5.

N was applied in two equal doses : half as complex fertilizer for T_1, T_2, as A/S for T_3, T_4 and T_5 as basal dressing another half was applied in the form of A/S for T_5 and Urea for T_1 to T_4 as top dressing 45 days after planting. P_2O_5 as Super was applied as basal dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×6·1 m. for 62(27); 7·6 m.×6·1 m. for others. (b) 8·4 m.×5·6 m. for 62(27); 7·5 m.×5·8 m. for others. (v) 38 cm.×23 cm. for 62(27); 8 cm.×13 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1964. (b) No. (c) Results of combined analysis are given under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 4176 Kg/ha. (ii) 521·0 Kg/ha. [based on 10 d.f. made up of Treatments×years interaction]. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3610	4384	4580	4045	4259	4176

C.D.=473·9 Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1962	3856	4546	4588	4340	4451	4271	*	4342	222·1
1963	3293	3541	3914	3725	3827	3770	*	3678	256·7
1964	3682	5066	5238	4069	4498	4487	*	4507	380·5
Mean	3610	4384	4580	4045	4259	4176	*	4176	521·0

———

Crop :-Paddy *(Thaladi)*. **Ref :- T.N. 61(30), 62(42), 63(47).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To find out the influence of N and P on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L. (ii) Clay loam. (iii) 17.9.1961/8.11.1961; 17.9.1962/2.11.1962; 30.10.1963/13.11.1963. (iv) (a) 3 ploughings. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 2. (v) Nil for 62(42); 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) A.D.T.—8 [medium]. (vii) Irrigated. (viii) 2 weedings. (ix) 49 cm., 96 cm., 115 cm. (x) 4.3.1962, 8.3.1963; 24.3.1964.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16{\cdot}8$, $N_2=33{\cdot}6$, $N_3=50{\cdot}4$ and $N_4=67{\cdot}2$ Kg/ha.

(2) 2 levels of P_2O_5 as Super : $P_1=22{\cdot}4$ and $P_2=44{\cdot}8$ Kg/ha.

A/S was applied in two equal doses 30 and 45 days after planting as top dressing. Super was applied as basal dressing before planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 6·1 m.×4·6 m. (b) 5·6 m.×4·1 m. (v) 25 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. (iii) Yield of grain. (iv) (a) 1961 to 1963. (b) No. (c) Results of combined analysis are given under 5. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 2069 Kg/ha. (ii) 458·1 Kg/ha. [based on 18 d.f. made up of Treatments×years interaction]. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	Mean
P_1	1319	1601	1891	2133	2915	1972
P_2	1486	1734	2252	2436	2920	2166
Mean	1402	1668	2072	2285	2918	2069

C.D. for N marginal means=320·8 Kg/ha.

Years	N_0	N_1	N_2	N_3	N_4	Sig.	P_1	P_2	Sig.	G.M.	S.E./plot
1961	1276	1610	1880	2340	2750	*	1802	2140	*	1971	96·4
1962	1815	2134	2617	2997	3946	*	2602	2801	*	2702	121·9
1963	1116	1260	1719	1517	2057	*	1512	1556	N.S.	1534	204·3
Mean	1402	1668	2072	2285	2918	*	1972	2166	N.S.	2069	458·1

Crop :- Paddy *(Samba)*. **Ref :- T.N. 63(139), 64(140).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the comparative efficacy of various treatments in maximising the phosphate potential of the soil.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 63(139; Paddy for 64(140). (c) N.A. for 63(139); 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 31.7.1963/6.9.1963; 31.7.1964/14, 15.9.1964. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) Nil. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 136 cm.; 52 cm. (x) 21, 22.1.1964; 4, 5.2.1965.

2. TREATMENTS :

Main-plot treatments :

4 levels of manures : M_0=No manure, M_1=F.Y.M. at 127 Q/ha., M_2=G.L. at 5600 Kg/ha. and M_3= Lime at 1120 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)+a control (no manure)

(1) 4 sources of P_2O_5 ; S_1=Super, S_2=Rock Phos., S_3=Ammo. Phos. and S_4=B.M.

(2) 2 levels of P_2O_5 : P_1=33·6 and P_2=67·2 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 5·6 m.×3·8 m. (v) 23 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height of plants and yield of grain. (iv) (a) 1962-1964 [Treatments in main-plot modified in 63]. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Since the sub-plot error variances are heterogeneous, results of individual years are presented under 5. Results.

5. RESULTS :

63(139)

(i) 3818 Kg/ha. (ii) (a) 388·8 Kg/ha. (b) 445 0 Kg/ha. (iii) Main effect of M alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	P_1	P_2	Mean
S_1	4023	3930	3680	3657	3909	3735	3822
S_2	3767	3814	3348	4023	3644	3833	3738
S_3	4163	3919	3433	3878	3999	3697	3848
S_4	3910	3823	3767	4320	3959	3951	3955
Mean	3966	3872	3557	3969	3878	3804	3841
P_1	4042	3846	3620	4003			
P_2	3889	3897	3494	3936			
Control	3980	3648	3340	3572			
weighted mean of P_1 P_2 and control	3967	3847	3533	3925			

C.D. for M marginal means=207 2 Kg/ha.

64(140)

(i) 3511 Kg/ha. (ii) (a) 494·8 Kg/ha. (b) 318·8 Kg/ha. (iv) Main effect of M and 'control vs. others'×M are highly significant. Main effect of S is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	P_1	P_2	Mean
S_1	3567	3642	3543	3434	3443	3645	3544
S_2	3421	3593	3668	3084	3487	3396	3442
S_3	3514	3668	3791	3604	3649	3639	3644
S_4	3305	3616	3540	3180	3332	3488	3410
Mean	3452	3630	3636	3323	3478	3542	3510
P_1	3462	3687	3513	3249			
P_2	3441	3572	3759	3396			
Control	3194	3415	4230	3241			
Weighted mean of P_1, P_2 & control	3423	3606	3702	3314			

C.D. for M marginal means=263 7 Kg/ha.

C D. for S marginal means =158·4 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 62(19), 63(28), 64(34).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the comparative efficacy of different sources of N at different levels for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 30.7.62/1.9.62; 24.7.1963/30.8.63; 26.7.64/26.8.64. (iv) (a) 3 ploughings by iron plough, levelling and working Burmese settun once. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 111 cm.; 136 cm.; 54 cm. (x) 16.2.1963; 21.1.1964; 23.1.1965.

2. TREATMENTS :

All combinations of (1) and (2)+a control (no manure)

(1) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.

(2) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.

N applied in two splits, half at the time of planting as basal dreseing and the other half as top dressing 45 days after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) 42·7 m.×6·1 m. (iii) 4. (iv) (a) 6·1 m.×6·1 m. (b) 5·9 m.×5·8 m. (v) 1 row around. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Tiller counts, plant height and yield of grain. (iv) (a) 1962 to 1964. (b) No. (c) Nil. (v) Tirurkuppam, Coimbatore and Ambasamudram. (vi) Nil. (vii) Error variances are heterogeneous and the Treatments×years interaction is absent.

5. RESULTS:

62(19)

(i) 1616 Kg/ha. (ii) 641·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1513 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2148	1723	1652	1841
N_2	1792	1160	1327	1426
Mean	1970	1442	1490	1634

63(28)

(i) 3490 Kg/ha. (ii) 312·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3520 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	3455	3442	3629	3509
N_2	3459	3474	3449	3461
Mean	3457	3458	3539	3485

64(34)

(i) 4766 Kg/ha. (ii) 254·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=4571 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	4679	4823	4769	4757
N_2	4913	4859	4751	4841
Mean	4796	4841	4760	4799

Crop :- Paddy (*Tadadi*). **Ref :- T.N. 63(20), 63(29), 64(35).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :— To study the comparative efficacy of different sources of N at different levels for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 20.9.62/8.11.62 ; 8.9.63/17.10.63 ; 5.9.64/29.10.64. (iv) (a) 3 ploughings with iron plough, levelling and working Burmese settum once. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M. +168 Kg/ha. of Super. (vi) Co—25 (late). (vii) Irrigated. (vii) 2 weedings. (ix) 83 cm. ; 124 cm. ; 48 cm. (x) 16.3.63 ; 20.2.64 ; 9.3.65.

2. TREATMENTS and 3. DESIGN :

Same as in expt. nos. 62 (19), 63 (28), 64 (34) on page 4.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, plant height, length of ear head and yield of grain. (iv) (a) 1962 to 1964. (b) No. (c) Nil. (v) Coimbatore, Tirurkuppam and Ambasamudram. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 3445 Kg/ha. (ii) 346·7 Kg/ha. (based on 66 d.f. made up of pooled error and Treatments × years interaction). (iii) Main effect of S and 'Control vs. others' are highly significant. Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

Control=3156 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	3312	3558	3310	3393
N_2	3547	3835	3397	3593
Mean	3430	3677	3353	3493

C.D. for S marginal means =200·1 Kg/ha.
C.D. for N marginal means =163·4 Kg/ha.
C.D. for Control vs. others =216·2 Kg/ha.

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	S.E./plot
1962	3307	3632	3013	*	3186	3448	N.S.	3018	3274	436·3
1963	3723	3908	3547	*	3641	3811	N.S.	3338	3670	252·0
1964	3259	3552	3500	N.S.	3353	3521	N.S.	3113	3390	318·2
Mean	3430	3697	3353	**	3393	3593	*	3156	3445	346.7

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 62(18), 64(27), 64(33).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :— To study tne comparative efficacy of different sources of N at different levels for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 29.6.62/27, 28.7.62 ; 28.6.63/25.7.63 ; 9.7.64/30.7.64. (iv) (a) 3 ploughings by iron plough, levelling and working Burmese settun once. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) ADT-3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 41 cm. ; 39 cm. ; 16 m. (x) 8.10.62 : 2.10.63 : 10.10.64.

2. TREATMENTS and 3. DESIGN :

Same as in expt. nos. 62 (19), 62 (28), 64 (34) on page 4.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, plant height, length of ear head and yield of grain. (iv) (a) 1962-64. (b) No. (c) Nil. (v) Coimbatore, Tirurkuppam aud Ambasamudram. (vi) Nil. (vii) Error variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled Results :

(i) 2991 Kg/ha. (ii) 308·8 Kg/ha (based on 12 d.f. made up of Treatments × years intraction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2853 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2916	3063	2992	2990
N_2	3057	2992	3066	3038
Mean	2987	3028	3029	3014

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	S.E /plot
1962	3178	3135	3227	N.S.	3166	3194	N.S.	2837	3131	355·0
1963	2957	3215	3071	*	2983	3179	*	2778	3037	168·5
1964	2826	2734	2790	N.S.	2823	2743	N.S.	2944	2806	215·4
Mean	2987	3028	3029	N.S.	2991	3039	N.S.	2853	2991	308·8

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 60(46), 61(44), 62(77),63(97),64(105),65(50).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :— To study the effect of N, P, K and lime on Paddy.

1. BASAL CONDITIONS :

(i) (a) Fallow-Paddy-Paddy for 60 (46) and 65 (50) ; Nil for others. (b) Fallow for 60 (46) ; Paddy for others (c) Nil for 60 (46) ; As per treatments for others. (ii) Alluvial loam for for 60 (46) ; Clay loam for others. (iii) 10.7.60/4, 5.8.60 ; 7.7.61/7, 8.8.61 ; 27.6.62/23.7.62 ; 12.7.63/17, 18.8.63 ; 24.6.64/18, 19.7.64 ; 3.7.65/28, 29.7.65. (iv) (a) 3 to 4 ploughings for 60 (46) ; Digging by mamuthy 3 times and levelling for others. (b) Transplanting. (c) 34 Kg/ha. for 60 (46) ; 44 Kg/ha. for 61 (44), 62 (77), 63 (97), 64 (105), 65 (50). (d) 10 cm.×10 cm. for 60 (46) ; 15 cm.×15 cm. for others. (e) 2. (v) Nil. (vi) A.D.T.-3 (early). (vii) Irrigated. (viii) 2 weedings for 60 (46) ; One weeding for others. (ix) 30 cm., 42 cm., 41 cm., 44 cm. 16 cm., 40 cm. (x) 28, 29.10.60 ; 22, 24.10.61 ; 9, 10.10.62 ; 25, 26.10.63 ; 30.9.64 and 1.10.64 ; 18, 19.10.65.

2. TREATMENTS :

Main-plot treatments :

5 sources of 67 Kg/ha. of N : N_0=Control (No N), N_1=A/S, N_2=Compost, N_3=F.Y.M. and N_4=G.M.

Sub-plot treatments :

All combinations of (1), (2) and (3),

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=67 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=67 Kg/ha.

(3) 2 levels of lime : L_0=0 and L_1=1680 Kg/ha.

A/S applied as top-dressing 25 days after planting. All others applied as basal dressing just before planting.

3. DESIGN :

(i) Split-plot. (ii) 5 main-plots/replication ; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 13·7 m.×2·3 m. (b) 13·6 m.×2·1 m. (v) 8 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1953-contd. (b) Yes. (c) Nil. (v) N.A. (vi) Nil. (vii) Expt. is continued beyond 65 and therefore individual results are presented.

5. RESULTS :

60(46)

(i) 3326 Kg/ha. (ii) (a) 572·5 Kg/ha. (b) 290·1 Kg/ha. (iii) Main effect of N and interaction N×P are highly significant. Main effect of P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2708	3368	3316	3524	3437	3286	3257	3261	3282	3271
P_1	3133	3299	3311	3692	3467	3361	3400	3375	3385	3380
Mean	2921	3333	3314	3608	3452	3323	3329	3318	3333	3326
L_0	2918	3333	3289	3563	3487	3306	3331			
L_1	2923	3333	3338	3652	3417	3341	3326			
K_0	2943	3329	3348	3566	3427					
K_1	2899	3338	3279	3650	3477					

C.D. for N marginal means =311·8 Kg/ha.
C.D. for P marginal means =91·1 Kg/ha.
C.D. for P means at the same level of N =203·6 Kg/ha.
C.D. for N means at the same level of P =343·3 Kg/ha.

61(44)

(i) 2078 Kg/ha. (ii) (a) 518·3 Kg/ha. (b) 259·8 Kg/ha. (iii) Main effects of N and P are highly significant. Inter action N×P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	1493	2012	1979	2246	2196	2024	1947	1979	1992	1985
P_1	1805	1961	2283	2378	2425	2134	2207	2200	2141	2170
Mean	1649	1987	2131	2312	2311	2079	2077	2089	2066	2078
L_0	1729	2023	2110	2255	2330	2107	2072			
L_1	1570	1950	2152	2369	2291	2051	2082			
K_0	1664	1989	2110	2296	2337					
K_1	1635	1984	2152	2328	2285					

C.D. for N marginal means =282·4 Kg/ha.
C.D. for P marginal means =81·6 Kg/ha.
C.D. for P means at the same level of N =182·4 Kg/ha.
C.D. for N means at the same level of P =310·3 Kg/ha.

62(77)

(i) 3115 Kg/ha. (ii) (a) 320·7 Kg/ha. (b) 300·6 Kg/ha. (iii) Main effects of N and P are highly significant. Interaction N×P×K is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2405	3292	2977	3271	2967	2958	3006	3011	2953	2982
P_1	2881	3522	3171	3482	3181	3210	3284	3294	3200	3247
Mean	2643	3407	3074	3376	3074	3084	3145	3153	3077	3115
L_0	2693	3414	3090	3509	3059	3127	3179			
L_1	2593	3400	3058	3243	3089	3042	3111			
K_0	2641	3434	3001	3303	3345					
K_1	2645	3381	3148	3450	3133					

C.D. for N marginal means=174·8 Kg/ha.
C.D. for P marginal means=94·3 Kg/ha.

63(97)

(i) 2249 Kg/ha. (ii) (a) 593·8 Kg/ha. (b) 232·7 Kg/ha. (iii) Main effects of N, P and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	1326	2283	2303	2390	2322	2098	2152	2174	2075	2125
P_1	1852	2304	2554	2569	2583	2353	2392	2356	2389	2372
Mean	1589	2294	2429	2479	2453	2225	2272	2265	2232	2249
L_0	1578	2395	2435	2508	2411	2248	2281			
L_1	1600	2192	2423	2450	2495	2202	2262			
K_0	1565	2290	2453	2412	2406					
K_1	1613	2297	2404	2546	2499					

C.D. for N marginal means =323·6 Kg/ha.
C.D. for P marginal means =73·0 Kg/ha.
C.D. for P means at the same level of N =163·2 Kg/ha.
C.D. for N means at the same level of P =343·2 Kg/ha.

64(105)

(i) 3522 Kg/ha. (ii) (a) 925·2 Kg/ha. (b) 473·7 Kg/ha. (iii) Main effect of N and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2808	3310	4015	3543	3776	3521	3459	3535	3446	3490
P_1	3388	3357	3541	3593	3892	3532	3576	3546	3562	3554
Mean	3098	3334	3778	3568	3834	3527	3518	3540	3504	3522
L_0	3101	3335	3838	3590	3838	3493	3588			
L_1	3095	3332	3718	3546	3829	3561	3447			
K_0	3009	3345	3868	3593	3819					
K_1	3187	3322	3688	3543	3849					

C.D. for N marginal means =504·0 Kg/ha.
C.D. for P means at the same level of N =332·5 Kg/ha.
C.D. for N means at the same level of P =555·7 Kg/ha.

65(50)

(i) 2335 Kg/ha. (ii) (a) 288·2 Kg/ha. (b) 229·7 Kg/ha. (iii) Main effects of N, P. and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2008	2283	2363	2407	2316	2297	2254	2281	2270	2275
P_1	2227	2176	2389	2695	2486	2326	2463	2425	2364	2394
Mean	2117	2229	2376	2551	2401	2312	2358	2353	2317	2335
L_0	2128	2289	2410	2542	2395	2331	2374			
L_1	2106	2170	2343	2560	2407	2292	2342			
K_0	2061	2153	2376	2556	2411					
K_1	2173	2305	2376	2546	2391					

C.D. for N marginal means =157·1 Kg/ha.

C.D. for P marginal means =72·1 Kg/ha.

C.D. for P means at the same level of N =161·1 Kg/ha.

C.D. for N means at the same level of P =189·2 Kg/ha.

Paddy :- (*Taladi*). **Ref :- T.N. 60(45), 61(45), 62(78), 62(78), 63(98), 64(106).**

Site :- Reg. Res. Stn., Audthurai. **Type :- 'M'.**

Object :—To study the effect of N, P, K and line on Paddy.

1. BASAL CONDITIONS :

(i) (a) Fallow-Paddy-Paddy for 60 (45) ; Nil for others. (b) Paddy. (c) As per treatments. (ii) Alluvial clay for 60 (45) ; Clay loam for others. (iii) 4.10.60/29, 30.11.60 ; 28.9.61/14,15.11.61 ; 13.10.62/19, 20.11.62 ; 30.9.63/ 18,20. 21.11.63 ; 5.9.64/13, 14.10.64. (iv) (a) 3 to 4 ploughings for 60 (45) ; Digging by mammuths three times and levelling for others. (b) Transplanting. (c) 28 Kg/ha. for 60 (45) : 44 Kg/ha. for others. (d) 15 cm × 15 cm. (e) 2. (v) Nil. (vi) Co-25 (medium) for 60 (45) ; Co-25 (late) for others, (vii) Irrigated. (viii) 1 to 2 weedings. (ix) 105 cm. ; 41 cm. ; 78 cm. ; 118 cm., 43 cm. (x) 24.3..61 ; 13, 14.3.62 ; 24, 25.3.63; 24, 25.3.64 ; 23, 24.2.65.

2. TREATMENTS : to 4. GENERAL :

Same as in expt. nos. 60 (46) 61 (44), 62 (77), 63 (97), 64 (105), on page 7.

5. RESULTS :

60(45)

(i) 2443 Kg/ha. (ii) (a) 628·4 Kg/ha. (b) 384·9 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	1324	3091	1979	1960	3422	2333	2377	2427	2283	2355
P_1	1562	3368	2044	2221	3457	2520	2540	2495	2566	2530
Mean	1443	3229	2011	2090	3440	2426	2460	2461	2425	2443
L_0	1404	3244	2142	2081	3432	2404	2518			
L_1	1483	3215	1880	2100	3447	2449	2401			
K_0	1337	3254	2088	2024	3427					
K_1	1549	3205	1935	2157	3452					

C.D. for N marginal means=342·3 Kg/ha.

C.D. for P marginal means=120·9 Kg/ha.

61(45)

(i) 2071 Kg/ha. (ii) (a) 626·7 Kg/ha. (b) 334·9 Kg/ha. (iii) Main effects of N and P are highly significant. Interactions N × K and N × K × L are significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	1115	2721	1609	1854	2088	1840	1915	1821	1934	1877
P_1	1672	2976	1961	2050	2665	2258	2272	2286	2243	2265
Mean	1394	2849	1785	1952	2377	2049	2093	2053	2089	2071
L_0	1396	2697	1803	1950	2421	2062	2045			
L_1	1391	3000	1767	1953	2332	2036	2141			
K_0	1308	2819	1638	2035	2445					
K_1	1479	2878	1932	1868	2309					

C.D. for N marginal means =341·4 Kg/ha.
C.D. for P marginal means =105·2 Kg/ha.
C.D. for K means at the same level of N =235·0 Kg/ha.
C.D. for N means at the same level of K =379·3 Kg/ha.

62(78)

(i) 3082 Kg/ha. (ii) (a) 765·3 Kg/ha. (b) 331·1 Kg/ha. (iii) Main effects of N, P and interaction N×P are highly significant. Interaction P×K is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2217	3502	2621	2727	3694	3048	2856	2954	2950	2952
P_1	2741	3476	2872	3241	3725	3201	3221	3219	3203	3211
Mean	2479	3489	2746	2984	3710	3125	3038	3087	3076	3082
L_0	2476	3567	2732	2887	3772	3093	3080			
L_1	2482	3411	2760	3081	3647	3156	2996			
K_0	2543	3472	2781	3049	3778					
K_1	2415	3506	2712	2919	3641					

C.D. for N marginal means =416·8 Kg/ha.
C.D. for P marginal means =104·0 Kg/ha.
C.D. for P×K table =147·8 Kg/ha.
C.D. for P means at the same level of N=232·4 Kg/ha.
C.D. for N means at the same level of P=447·8 Kg/ha.

63(98)

(i) 2726 Kg/ha. (ii) (a) 987·6 Kg/ha. (b) 363·9 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	1725	2633	2352	2455	3388	2521	2500	2548	2473	2511
P_1	2405	3128	2630	2797	3741	2911	2969	2955	2925	2940
Mean	2065	2881	2491	2626	3565	2716	2735	2752	2699	2726
L_0	2058	2990	2489	2606	3616	2768	2736			
L_1	2072	2771	2493	2646	3513	2664	2734			
K_0	2005	2962	2454	2549	3611					
K_1	2126	2801	2528	2702	3518					

C.D. for N marginal means=538·0 Kg/ha.
C.D. for P marginal means=114·1 Kg/ha.

64(106)

(i) 3315 Kg/ha. (ii) (a) 585·6 Kg/ha. (b) 293·3 Kg/ha. (iii) Main effects of N and P are highly significant. Interactian N×P×L is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	L_0	L_1	Mean
P_0	2640	3393	2890	3343	3521	3138	3177	3129	3186	3157
P_1	3025	3711	3162	3576	3885	3433	3511	3499	3444	3472
Mean	2832	3552	3026	3460	3703	3285	3344	3314	3315	3315
L_0	2817	3474	2984	3556	3741	3247	3382			
L_1	2847	3631	3068	3363	3666	3324	3306			
K_0	2798	3611	2944	3414	3660					
K_1	2867	3493	3108	3505	3747					

C.D. for N marginal means=319·0 Kg/ha.
C.D. for P marginal means=92·1 Kg/ha.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 60(42).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :— To study the effect of time and method of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Alluvial clay. (iii) 22.9.60/19, 20.11.60. (iv) 3 to 4 ploughings. (b) Transplanting. (c) —. (d) 25 cm.× 13 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Co-25 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 66 cm. (x) 15.3.61.

2. TREATMENTS :

5 times of application of N : T_1=60 days after planting, $T_2=\frac{1}{2}$ at planting$+\frac{1}{2}$ after 60 days of planting, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting $+\frac{1}{3}$ after 30 days of planting$+\frac{1}{3}$ after 60 days of planting, $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 30 days of planting$+\frac{1}{3}$ a week before flowering.

N applied as A/S at 34 Kg/ha.

3. DESIGN :

(i) R.B,D. (ii) (a) 5. (b) N A. (iii) 6. (iv) (a) 7·6 m.×4·6 m. (b) 7·5 m.×4·3 m. (v) 12 cm.×6 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958 to 60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 391·0 Kg/ha. (ii) 430·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3867	3934	3741	4045	3961

Crop :- Paddy (*Samba*). **Ref -: T.N. 60(43).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the effect of time and method of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Pady-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Alluvial clay. (iii) 25.7.60/17.9.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting (c) —. (d) 25 cm.×13 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Co-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 75 cm. (x) 1.2.61.

2. TREATMENTS :

Same as in expt. no. 60 (42) on page 12.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 9·1 m.×3·8 m. (b) 6·9 m.×3·7 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958 to 60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3888 Kg/ha. (ii) 454·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3951	4023	3894	3810	3761

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 60(41).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :— To study the effect of time and method of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Alluvial clay. (iii) 27.6.60/25, 26.7.60. (iv) (a) 3 to 4 ploughings. (b) Transplantings. (c) —. (d) 25 cm. ×10 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Adt-3 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 45 cm. (x) 4.10.60.

2. TREATMENTS :

5 times of applications of N : T_1=30 days after planting, $T_2=\frac{1}{2}$ at planting$+\frac{1}{2}$ after 30 days of planting, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 15 days of planting$+\frac{1}{3}$ after 30 days of planting and $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 15 days of planting$+\frac{1}{3}$ a week before flowering.

N applied as A/S at 34 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 9·1 m.×3·7 m. (b) 8·9 m.×3.6 m. (v) One row left alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3366 Kg.ha. (ii) 169·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3284	3422	3343	3380	3403

Crop :- Paddy (*Samba*). **Ref :- T.N. 61(84).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the effect of bulky manures and P on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Clay loam. (iii) 4.8.61/18.9.61 (iv) (a) 2 ploughings with iron plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 23 cm.×15 cm. (e) 2. (v) Nil. (vi) Co-25 (late), (vii) Irrigated. (viii) 2 weedings. (ix) 55 cm. (x) 7, 8.2.62.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(i) 3 levels of N : N_0=No manure, N_1=G.L. at 5600 Kg/ha. and N_2=F.Y.M. at 127 Q/ha.
(2) 3 levels of P_2O_5 : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.
(2) 2 sources of P_2O_5 : S_1=Super and S_2=Rock phos.

Manures applied as basal dressing one week prior to planting and incorporated in the soil.

3. DESIGN :

(i) $3^2 \times 3$ Fact. confd. (ii) (a) 6 plots/block ; 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×3·7 m. 5·3 m.×3·2 m. (v) 38 cm.×23 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, height of plants and grain yield. (iv) (a) 1961 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3806 Kg/ha. (ii) 344·3 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	S_0	S_1	Mean
N_0	3198	3533	3638	3380	3532	3456
N_1	4022	4314	3913	4114	4052	4083
N_2	3937	3829	3875	3810	3950	3880
Mean	3719	3892	3809	3768	3845	3806
S_0	3737	3851	3716			
S_1	3700	3933	3902			

C.D. for N marginal means=203·3 Kg/ha.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 62(109).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the effect of various treatments in maximising the Phosphate potential of the soil.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 20.9.62/3, 4 and 5.11.62. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) Nil. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 83 cm. (x) 14 3.63.

2. TREATMENTS :

Main-plot treatments :

4 levels of manures : M_0=No manure, M_1=F.Y.M. at 127 Q/ha., M_2=G.L. at 5600 Kg/ha. and M_3 =Line at 3360 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2) with a control (no P_2O_5)

(1) 4 sources of P_2O_5 : S_1=Super, S_2=Rock Phos., S_3=Amm. Phos. and S_4=B.M.

(2) 2 levels of P_2O_5 : P_1=33·6 and P_2=67·2 Kg/ha.

F.Y.M., G.L., line were applied as basal dressing one week prior to planting and incorporated in the soil.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/block and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·5 m. × 5·3 m. (b) 5·0 m. × 4·6 m. (v) 23 cm. × 38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height of plant and grain yield. (iv) (a) 1962 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3670 Kg/ha. (ii) (a) 542·3 Kg/ha. (b) 349·7 Kg/ha. (iii) Main effect of M and interaction S × P are highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	P_1	P_2	Mean
S_1	3669	3748	4218	3289	3792	3671	3731
S_2	3536	3713	4189	3362	3671	3729	3700
S_3	3436	3765	4026	3240	3797	3436	3617
S_4	3471	3762	4047	3050	3463	3702	3583
Mean	3528	3747	4120	3235	3681	3635	3658
P_1	3491	3778	4185	3269			
P_2	3565	3716	4055	3202			
Control	3767	3930	4012	3360			

C.D. for M marginal means =289·1 Kg/ha.

C.D. for means in the body of S × P table=245·7 Kg/ha.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 64(95).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'M'.**

Object :—To study the effect of different manures on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Clay loam. (iii) 29.9.64/16.11.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) Nil. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 44 cm. (x) 23.3.65.

2. TREATMENTS :

5 manurial schedules : M_0=No manure (control), M_1=Farm manure schedule—5605 Kg/ha. of G.L.+67·2 Kg/ha. of A/S in two doses+168 Kg/ha. of Super, M_2=Soil test recommendation—5605 Kg/ha. of G.L.+84 Kg/ha. of A/S+112 Kg/ha. of Super, M_3=Ryots method—2240 Kg/ha. of G.L. and M_4=5605 Kg/ha. of G.L.+224 Kg/ha. of Super+112 Kg/ha. of A/S in two doses.

G.L. was applied as basal dressing 4 days before planting and transplanted; Super just before planting as basal dressing. A/S in two equal doses one half as basal dressing just before planting and the other half as top-dressing 45 days after planting.

3. DESIGN :

(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 7·6 m.×3·1 m. (b) 7·4 m.×2·9 m. (v) 12 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height of plants and grain yield. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3348 Kg/ha. (ii) 344·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	2625	3624	3619	2803	4068

C.D.=474·6 Kg/ha.

Crop :- Paddy (*Kar*). **Ref :- T.N. 62(30), 63(41), 64(49).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'M'.**

Object :—To find out the comparative efficacy of C/A/N with other nitrogenous fertilizers for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil for 62(30); Paddy—Paddy for others. (b) Paddy. (c) 5000 Kg/ha. of compost+375 Kg/ha. of A/S+375 Kg/ha. of Super for 62(30); 5600 Kg/ha. of G.L.+168 Kg/ha. of Super for others. (ii) Clay loamy. (iii) 20.6.1962/17, 18.7.1962; 18.6.1963/17.7.1963; 11.6.1964/6.7.1964. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 40 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) ASD—1 (early). (vii) Irrigated. (viii) 2 hand weedings. (ix) 14 cm.; 14 cm.; 13 cm. (x) 12.10.1962; 11.10.1963; 7.10.1964.

2. TREATMENTS :

All combinations of (1) and (2) with a control

(1) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.

(2) 2 levels of N: N_1=22·4 and N_2=33·6 Kg/ha.

N applied as top dressing 30 days after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 7·2 m.×5·9 m. (b) 7·0 m.×5·8 m. (v) 8 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1964. (b) No. (c) Results of combined analysis are given undar 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments× years interaction is absent.

5. RESULTS :

(i) 4982 Kg/ha. (ii) 308·4 Kg/ha. [based on 66 d.f. made up of Treatments×years interaction and pooled error]. (iii) Only 'control vs. others' is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=4673 Kg/ha.

	S_1	S_2	S_3	Mean
D_1	5006	5047	5045	5033
D_2	4958	5140	5008	5035
Mean	4982	5094	5026	5034

C.D. for 'control vs. others'=251·5 Kg/ha.

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	S.E./plot
1962	5565	5817	5845	N.S.	5670	5814	N.S.	4972	5632	330·3
1963	5223	5307	5125	N.S.	5251	5186	N.S.	5014	5189	305·2
1964	4157	4157	4110	N.S.	4177	4105	N.S.	4033	4126	239·1
Mean	4982	5094	5027	N.S.	5033	5035	N.S.	4678	4982	308·4

Crop :- Paddy (*Pishanam*). **Ref :- T.N. 62(31), 63(42), 64(50).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'M'.**

Object :—To find out the comparative efficacy of C/A/N with other nitrogenous fertilizers for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil for 62(31); Paddy—Paddy for others. (b) Paddy. (c) 5000 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(31); 5600 Kg/ha. of G.L.+168 Kg/ha. of Super for others. (ii) Clay loamy. (iii) 8.9.62/23.10.62; 19.9.63/5.11.63; 4.9.64/20.10.64. (iv) (a) 4 ploughings and levelling. (b) Line planting. (c) 40 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(31); 5600 Kg/ha. of G.L.+168 Kg/ha. of Super for others. (vi) Co—25 (medium) for 63(42); Co—25 (late) for others. (vii) Irrigated. (viii) 2 hand weedings. (ix) 92 cm.; 80 cm.; 25 cm. (x) 6.3.1963; 9.3.64; 27.2.65.

2. TREATMENTS : and 3. DESIGN :

Same as in Expt. Nos. 62(30); 63(41); 64(49) on page 16.
N applied as top dressing 60 days after planting.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962—1964. (b) No. (c) Results of combined analysis are given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 4743 Kg/ha. (ii) 356·6 Kg/ha. [based on 12 d.f. made up of Treatments×years interaction]. (iii) Main effects of S is significant and 'control vs. others' is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=4359 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	4547	4820	4785	4717
N_2	4711	5015	4964	4897
Mean	4629	4918	4874	4807

C.D. for S marginal means =224·3 Kg/ha.

C.D. for 'control vs. others'=317·1 Kg/ha.

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	S.E./plot
1962	4511	5167	5084	**	4832	5009	N.S.	4553	4868	283·7
1963	4250	4339	4379	N.S.	4250	4395	N.S.	4016	4279	228·2
1964	5127	5247	5160	N.S.	5070	5286	*	4508	5082	211·0
Mean	4629	4918	4874	*	4717	4897	N.S.	4359	4743	356·6

Crop :- Paddy (*Pishanam*). **Ref :- T.N. 60(6).**

Site :- Rice. Res. Stn., Ambasamudram. **Type :- 'M'.**

Object :—To study the response of paddy to the fractional application of A/S.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super+34 Kg/ha. of N as A/S. (ii) Clayey loam. (iii) 7.9.60/29, 30.10.60. (iv) (a) 4 ploughings. (b) Transplanting. (c) N.A. (d) 15 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Co. 25. (vii) Irrigated. (viii) 1 Weeding. (ix) 50 cm. (x) 6.5.61.

2. TREATMENTS :

5 times of application of 33·6 Kg/ha. of N as A/S : T_1=Two months after planting, $T_2=\frac{1}{2}$ at planting+$\frac{1}{2}$ after 2 months, $T_3=\frac{1}{2}$ at planting+$\frac{1}{2}$ a week prior to flowering, $T_4=\frac{1}{3}$ at planting+$\frac{1}{3}$ one month after+$\frac{1}{3}$, 2 month after planting and $T_5=\frac{1}{3}$ at planting +$\frac{1}{3}$ one month after and $\frac{1}{3}$ a week prior to flowering.

3· DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 6·1 m.×3·4 m. (b) 5·8 m.×3·1 m. (v) 15 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958 to 1960. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3329 Kg/ha. (ii) 271·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3598	3303	3239	3303	3203

Crop :- Paddy (*Kar*). **Ref :- T.N. 60(5).**

Site :- Rice. Res. Stn., Ambasamudram. **Type :- 'M'.**

Object :—To study the time of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super+34 Kg/ha. of N as A/S. (ii) Clayey loam. (iii) 2.6.60/30.6.60 and 1.7.60. (iv) (a) 4 ploughings. (b) Transplanting. (c) —. (d) 10 cm.×10 cm. (e) 1. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Asd—1. (vii) Irrigated. (viii) One weeding. (ix) 15 cm. (x) 4.10.60.

2. TREATMENTS :

5 times of application of 33·6 Kg/ha. of N : T_1=One month after planting, $T_2=\frac{1}{2}$ at planting $+\frac{1}{2}$ one month after planting, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ a week prior to flowering, $T_4=\frac{1}{3}$ at planting$+\frac{1}{3}$ at 15 days after$+\frac{1}{3}$ at one month after planting, $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ at 15 days after$+\frac{1}{3}$ a week prior to flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 6·1 m.×3·4 m. (b) 5·9 m.×3·1 m. (v) 12 cm.×12 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958 to 1960. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3972 Kg/ha. (ii) 151·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3666	4087	4175	3941	3992

C.D.=182·3 Kg/ha.

Crop :- Paddy (*Pishanam*). **Ref :- T.N. 60(60).**

Site :- Rice. Res. Stn., Ambasamudram. **Type :- 'M'.**

Object :—To study the response of Paddy to fractional application of A/S.

1. BASAL CONDITIONS :

(i) Paddy-Paddy. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (iii) Clay loamy. (iii) 7.9.60/29, 30.10.60. (iv) (a) 2 ploughings with iron plough, 2 with country plough and levelling. (b) Planting in lines. (c) 44·5 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super×33·6 Kg/ha. N as A/S applied 30 days after planting. (vi) Co. 25 (medium). (vii) Irrigated. (viii) Hand weeding twice. (ix) 103 cm. (x) 6.3.61.

2. TREATMENTS :

5 times of top dressing of 33 Kg/ha. of N as A/S : T_1=Full dose 30 days after planting, $T_2=\frac{1}{2}$ at planting$+\frac{1}{2}$ one month after planting, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ one week before flowering, $T_4=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 15 days of planting and $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ one month after planting $+\frac{1}{3}$ a week before flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 6·3 m.×3·5 m. (b) 6·1 m.×3·4 m. (v) 8 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Straw and grain yield. (iv) (a) No. (b) Nil. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2873 Kg/ha. (ii) 235·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3105	2850	2795	2850	2765

Crop :- Paddy (*Navarai*). **Ref :- T.N. 63(2), 64(1), 65(1).**

Site Paddy Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To find out the effect of different sources of N on the yield of Paddy.

1. BASAL CONDITIONS ;

(i) (a) Nil for 64(1) ; Paddy--Paddy for others. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super +33·6 Kg/ha. of N as C/A/N. (ii) Clay loam. (iii) 12.1.63/11.2.63 ; 20.1.64/21.2.64 ; 30.1.65/12.3.65. (iv) (a) Prepared the field to a good puddled condition. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×13 cm. for 63(2) ; 15 cm.×15 cm. for 64(1) ; 25 cm.×10 cm. for 65(1). (v) Nil for 64(1) ; 5605 Kg/ha. of G.L.+168 Kg/ha. of super for others. (vi) T.K.M.—6. (vii) Irrigated. (viii) Interculturing at 15 days interval for 64(1) ; Nil for others. (ix) 10 cm., 8 cm., 11 cm. (x) 23, 24.5.63 ; 26.5.64 ; 19.6.65.

2. TREATMENTS :

All combinations of (1) and (2)+a Control
(1) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.
(2) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.
N applied as top dressing 20 days after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 3·0 m.×16·2 m. for 63(2) ; 2·3 m.×14·6 m. for others. (b) 2·7 m.×16·1 m. for 63(2) ; 2·0 m.×14·5 m. for 64(1) ; 2·0 m.×14·4 m. for 65(1). (v) 13 cm. ×6 cm. for 63(2) ; 13 cm.×8 cm. for 64(1) ; 13 cm.×10 cm. for 65(1). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1965. (b) No. (v) (a) Palur and Tirurkuppam. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

63 (2)

(i) 2415 Kg/ha. (ii) 259·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2199

	S_1	S_2	S_3	Mean
N_1	2338	2459	2577	2458
N_2	2352	2479	2498	2443
Mean	2345	2469	2538	2451

64(1)

(i) 3250 Kg/ha. (ii) 136·4 Kg/ha. (iii) Control vs. others alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3008

	S_1	S_2	S_3	Mean
N_1	3195	3365	3229	3263
N_2	3272	3399	3280	3317
Mean	3234	3382	3255	3290

C.D. for control *vs.* others=154·8 Kg/ha.

(65) 1

(i) 4079 Kg/ha. (ii) 174·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3867

	S_1	S_2	S_3	Mean
N_1	3948	4157	4059	4055
N_2	4209	4128	4187	4175
Mean	4079	4143	4123	4115

Crop :- Paddy (*Samba*). **Ref :- T.N. 62(1), 63(1), 64(2).**

Site :- Paddy Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To find out the effect of different sources of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil for 63(1); Paddy—Paddy for others. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super +33·6 Kg/ha. of N as C/A/N for 62(1); As per treatments for others. (ii) Clay loam. (iii) 7.9.62/20.10.62; 28.8.63/20.10.63; 21.8.64/1.10.64. (iv) (a) Prepared the field to a good puddled condition. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) Nil for 63(1); 5605 Kg/ha. of G.L.+168Kg/ha. of Super for others. (vi) Co.—25. (vii) Irrigated. (viii) Interculturing at 15 days interval for 63(1); Nil for others. (ix) 50 cm.; 32 cm.; 48 cm. (x) 7, 8.3.63; 15.2.64; 28.2.65.

2. TREATMENTS :

All combinations of (1) and (2) with a control
(1) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.
(2) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.
N applied as top dressing 50 days after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 2·3 m.×17·4 m. (b) 2·0 m.×17·2 m. (v) 13 cm. ×8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962—1965 [season is different in 1965]. (b) Yes. (c) Results of combined analysis are given under 5. (v) (a) Palur and Tirurkuppam. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

RESULTS :

(i) 3592 Kg/ha. (ii) 271·2 Kg/ha. [based on 66 d.f. made up of pooled error and Treatments×years interaction]. (iii) Only 'control vs. others' is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3283 Kg/ha.

	S_1	S_2	S_3	Mean
M_1	3650	3601	3575	3609
M_2	3590	3683	3767	3680
Mean	3620	3642	3671	3644

C.D. for 'control vs. others'=169·0 Kg/ha.

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	S.E./plot
1962	3163	3269	3221	N.S.	3227	3275	N.S.	2901	3201	248·1
1963	4209	4244	4264	N.S.	4219	4259	N.S.	3845	4183	315·1
1964	3489	3413	3429	N.S.	3380	3507	N.S.	3104	3395	304·6
Mean	3620	3642	3609	N.S.	3671	3680	N.S.	3283	3592	271·6

Crop :- Paddy (*Navari*). **Ref : T.N. 60(2), 61(3).**
Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the best time of application of A/S for Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 20.1.60/22.2.60; 20.1.61/17.2.61. (iv) (a) 4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm.×15 cm. for 60(2); 25 cm.×10 cm. for 61(3). (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) 6522 (short) for 60(2), Co—29 for 61(3). (vii) Irrigated. (viii) 1 weeding. (ix) 26 cm., 14 cm. (x) 23.5.60; 27.5.61.

2. TREATMENTS :

5 times of application of 33·6 Kg/ha. of N as A/S : T_1=One month after planting, $T_2=\frac{1}{2}$ at planting+$\frac{1}{2}$ one month after planting, $T_3=\frac{1}{2}$ at planting+$\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 15 days of planting +$\frac{1}{3}$ one month after planting and $T_5=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 15 days of planting+$\frac{1}{3}$ a week before flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 5·3 m.×3·1 m. for 60(2); 4·4 m.×3·3 m. for 61(3). (b) 5·0 m.×2·5 m. for 60(2); 4·2 m.×2·8 m. for 61(3). (v) 15 cm.×2·6 cm. for 60(2); 10 cm.×27 cm. for 61(3). (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1959 to 1961. (b) No. (c) Results of combined analysis are given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Results of Expt. No. 59(6) have also been considered while giving combined results. Error variances are homogeneous and Treatments× years interaction is absent.

5. RESULTS :

(i) 2780 Kg/ha. (ii) 239·1 Kg/ha. [based on 68 d.f. made up of pooled error and Treatments×years interaction]. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_1	T_2	T_3	T_4	T_5
Av. yield	2806	2703	2775	2732	2883

Years	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S E'/plot
1960	2576	2526	2531	2671	2882	×	2637	206·0
1961	3210	3148	3153	2991	3127	N.S.	3126	272·1

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(55), 61(10), 62(5), 63(7), 64(5).**

Site :- Agri. College and Res.
Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of foliar applied nutrients on the growth and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy for 60(55) and 61(10); Nil for others. (b) Paddy. (c) 5605 Kg/ha. of G.L. (ii) Clay loam. (iii) 1.6.60/27.7.60; 12.7.61/22.8.61; 6 7.62/18.8.62; 17.7.63/29.8.63; 2.8.64/18.9.64. (iv) (a) 4 to 5 ploughings and levelling. (b) Sowing in nurseries after soaking the seeds in water over night. (c) 34 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.L. (vi) G.E.B—24 (medium) for 60(55) ; Co—25 (late) for others. (vii) Irrigated. (viii) 3 weedings for 64(5) ; Periodical weedings for others. (ix) 18 cm.; 25 cm.; 25 cm.; 20 cm.; 20 cm. (x) 10.12.60; 20.1.62; 25.1.63; 20.1.64; 11.2.65.

2. TREATMENTS :

10 spraying treatments : T_0=Control (no manure), T_1=Water spray, T_2=Urea 1%, T_3=Super 1%, T_4=Ammo. Phos.; T_5=Urea (2 sprays)+Super (one spray): T_6=Ammo. Phos. (2 spray, Super (one spray), T_7=Urea (one spray)+Ammo. Phos. (2 sprays), T_8=Pot. Phos. and T_9=Urea (2 sprays)+Pot. Phos. (one spray).

Manures sprayed thrice on 20, 40 and 60 days after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 8 for 60(55) and 61(10); 6 for others. (iv) (a) 8·3 m. × 2·2 m. for 60(55) and 61(10); 7·1 m. × 2·6 m. for others. (b) 8·1 m. × 2·0 m. for 60(55) and 61(10); 7·0 m. × 2·5 m. for others. (v) 10 cm. × 10 cm. for 60(55) and 61(10); 5 cm. × 6 cm. for others. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) A protective spraying of folidol against thrips at nursery stage and another spraying of folidol against incidence of stem borer after 1½ months of transplanting. (iii) Yield of grain. (iv) (a) 1959 to 1964. (b) Yes. (c) Results of combined analysis are given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Results of Expt. No. 59(36) have also been considered while giving combined results. Error variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

(i) 3850 Kg/ha. (ii) 427·2 Kg/ha. [based on 45 d.f. made up of Treatments × years interaction]. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	3793	3797	3917	3812	3858	3933	3789	3814	3907	3880

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	Sig.	G M.	S.E./plot
1960	2890	2890	2872	2592	2820	2715	2557	2662	3065	2610	N.S.	2767	131·3
1961	4203	4273	4238	4554	4133	4449	4238	4238	4343	4414	N.S.	4308	442·8
1962	5184	5141	5270	4968	5314	5054	5141	5357	5443	5746	N.S.	5262	425·1
1963	4471	4622	4860	4493	4601	4774	4601	4471	4493	4730	N.S.	4612	246·4
1964	3391	3175	3316	3294	3370	3661	3316	3445	3121	3229	N.S.	3332	461·4

Crop :- Paddy (*Main*). **Ref :- T.N. 62(14), 63(23), 64(28).**

Site :- Agri. College and Res. Instt.,
Coimbatore. **Type :- 'M'.**

Object ;—To find out the effects of soil and foliar applications of micronutrients on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loamy. (iii) 6.7.62/24.8.62; 17.7.63/2.9.63 ; 2.8.64/16.9.64. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) Co—25 (late). (vii) Irrigated. (viii) Weeding by hand and rotary weeder. (ix) 58 cm., 29 cm,, 51 cm. (x) 31.1.63; 23.1.64; 13.2.65.

2. TREATMENTS :

All combinations of (1), (2) and (3) with 2 extra treatments

(1) 2 methods of application : M_1=Soil and M_2=Foliar application.
(2) 3 micronutrients : N_1=Cu SO_4, N_2=Mn SO_4 and N_3=Zn SO_4.
(3) 3 levels of micronutrients : L_1=11·2, L_2=22·4 and L_3=56·0 Kg/ha.

Extra treatments : T_1=Control (no spray) and T_2=Water spray. The soil application of micronutrients was done at the time of planting. The foliar application was split up into three equal doses and applied at fortnightly intervals from one month after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 20. (b) N.A. (iii) 5 for 62(14); 4 for others. (iv) (a) 6·1 m.×1·4 m. for 62(14); 10·4 m.×1·4 m. for others. (b) 6·1 m.×1·2 m. for 62(14); 10·4 m.×1·2 m. for others. (v) 8 cm. on either side. (vi) Yes.

4. GENERAL :

(i) Fair growth. (ii) Folidol sprayed at nursery stage against thrips and 1½ months after transplanting against stem borer. (iii) Yield of grain. (iv) (a) 1962—1964. (b) Yes. (c) Results of combined analysis are given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous Treatments× years interaction is present.

5. RESULTS :

(i) 6263 Kg/ha. (ii) 1275·6 Kg/ha. [based on 26 d.f. made up of various components of Treatments×years interaction]. (iii) Main effect of M alone is significant. (iv) Av. yield of grain in Kg/ha.

T_1=6077 and T_2=6411.

	N_1	N_2	N_3	M_1	M_2	Mean
L_1	6174	6537	6416	6576	6175	6376
L_2	6203	6096	6381	6320	6134	6227
L_3	5804	6254	6517	6489	5894	6192
Mean	6060	6296	6438	6462	6068	6265
M_1	6136	6432	6817			
M_2	5985	6159	6060			

C.D. for M marginal means=342·8 Kg/ha.

Years	N_1	N_2	N_3	Sig.	L_1	L_2	L_3	Sig.	M_1	M_2	Sig.	G.M.	S.E./plot
1962	6835	7682	7812	**	7345	7389	7443	N.S.	7407	7377	N.S.	7379	546·8
1963	5512	5774	5797	N.S.	6110	5572	5400	**	6352	5036	**	5690	493·3
1964	5370	5303	5609	N.S.	5430	5430	5422	N.S.	5390	5465	*	5441	683·1
Mean	6060	6296	6438	N.S.	6376	6227	6192	N.S.	6462	6068	*	6263	1275·6

Crop :- Paddy (*Main*). **Ref :- T.N. 62(121), 63(158), 64(168).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of addition of blue green algae (Tolypottrix teunis) to the soil alone and in combination with other manures on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam. (iii) 28.7.62/28.8.62 ; 9.8.63/7.9.63 ; 27.8.64/25.9.64. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 15 cm × 15 cm. (e) 2. (v) Nil. (vi) CO-29(early). (vii) Irrigated. (viii) 3 weedings. (ix) 36 cm., 16 cm., 37 cm. (x) 26.11.62 ; 12.12.63 ; 26.12.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 levels of G.L. : $G_0=0$ and $G_1=5587$ Kg/ha.
(2) 2 levels of N as A/S : $N_0=0$ and $N_1=168$ Kg/ha.
(3) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=168$ Kg/ha.
(4) 2 levels of blue green Algae : $L_0=0$ and $L_1=7{\cdot}4$ Kg/ha.

G.L. was applied a week before transplanting. Super and Algae were applied just before transplating A/S was applied in two doses, half before transplanting and half one month after transplanting.

3. DESIGN :

(i) 2^4 Fact. confd. (4-factor interaction confd.). (ii) (a) 8 plots/block ; 2 blocks/replication. (b) N.A. (iii) 3. (iv) (a) 2·1 m. × 1·8 m. (b) 2·0 m. × 1·7 m. (v) 8 cm. × 8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No serious incidence. Spraying of folidol and dusting of B.H.C. were done as a precautionary measure. (iii) Grain yield. (iv) (a) 1962 to 1964. (b) Yes. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

(i) 2776 Kg/ha. (ii) 900·7 Kg/ha. (based on 10 d.f. made up of various components of Treatments × years interaction). (iii) Main effect of G is significant and that of N is highly significant. (iv) Table of mean and differential response in Kg/ha.

Differential response

	Mean response	G		N		P		L	
		—	+	—	+	—	+	—	+
G	457·7	—	—	569·7	345·7	465·0	450·4	518·4	397·0
N	539·5	651·5	427·5	—	—	484·0	595·0	462·5	616·5
P	24·1	31·4	16·8	—31·4	79·6	—	—	—41·1	89·3
L	13·7	74·4	—47·0	—63·3	90·7	—51·5	78·9	—	—

C.D. for G or N response = 334·4 Kg/ha.

Main effect

	G	N	P	L	G.M.	S.E./plot	Sig.
Mean response 1962	616·3	630·8	90·0	52·4	2855	194·6	G and N
1963	759·6	857·8	13·2	—80·1	2474	336·0	G and N
1964	—2·7	129·8	—31·0	68·9	2998	249·8	None Sig.

Crop :- Paddy (*Samba*). **Ref :- T.N. 61(54), 62(80), 63(100), 64(109).**

Site :- Agri. Res. Stn., Palur. **Type :- 'M'.**

Object :—To study the long term effect of N, P, K and lime on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) As per treatments. (ii) Loamy soil. (iii) 12.8.1961/7, 8.10.1961 ; 15.8.62/8, 9.10.62 ; 3.8.63/2, 4.10.63 ; 5.8.64/18, 30.9.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) Nil. (vl) CO-25. (vii) Irrigated. (viii) 2 weedings. (ix) 85 cm. ; 143 cm. ; 111 cm. ; 78 cm. (x) 5 to 7.2.62 ; 7 to 10.2.63 ; 30.1.64 to 2.2.64 ; 6 to 9.2.65.

2. TREATMENTS :

Main-plot treatments :

5 sources of 67 Kg/ha. of N : N_0=Control (No N), N_1=A/S, N_2=Compost, N_3=F.Y.M. and N_4=G.L.

Sub-plot treatments :

All combinations of (1), (2) and (3)

(1) 2 levels of P_2O_5 : P_0=0 and P_1=67 Kg/ha.
(2) 2 levels of K_2O : K_0=0 and K_1=67 Kg/ha.
(3) 2 levels of Lime : L_0=0 and L_1=1680 Kg/ha.

F.Y.M., Compost and G.L. applied 10 days before planting. A/S applied at planting. P_2O_5, K_2O and time applied a week before planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication, 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 7·6 m.×4·9 m. (b) 7·4 m.×4·7 m. (v) 12 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) (a) N.A. (b) Nil (vi) Nil. (vii) Since the experiment is continued beyond 1965 and therefore individual year results are presented. Data for 1960 and 1965 are N.A.

5. RESULTS :

61(54)

(i) 4339 Kg/ha. (ii) (a) 721·0 Kg/ha. (b) 316·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	K_0	K_1	P_0	P_1	Mean
N_0	4206	4226	4163	4269	4104	4328	4216
N_1	4389	4621	4443	4567	4526	4485	4505
N_2	4477	4470	4436	4512	4458	4490	4474
N_3	4256	4330	4377	4210	4332	4255	4293
N_4	4208	4204	4317	4095	4264	4149	4206
Mean	4307	4370	4347	4331	4337	4341	4339
P_0	4347	4326	4381	4292			
P_1	4268	4414	4314	4369			
K_0	4289	4405					
K_1	4326	4335					

62(80)

(i) 3789 Kg/ha. (ii) (a) 686·5 Kg/ha. (b) 371·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	K_0	K_1	P_0	P_1	Mean
N_0	3611	3581	3523	3669	3500	3692	3596
N_1	3619	3486	3604	3500	3496	3608	3552
N_2	3849	4048	3928	3969	3863	4034	3949
N_3	4122	4071	4034	4159	4131	4062	4096
N_4	3775	3730	3703	3802	3760	3744	3752
Mean	3795	3783	3758	3820	3750	3828	3789
P_0	3795	3705	3729	3771			
P_1	3795	3861	3787	3869			
K_0	3723	3793					
K_1	3866	3773					

63 (100)

(i) 3379 Kg/ha. (ii) (a) 420·3 Kg/ha. (b) 202·6 Kg/ha. (iii) Main effects of N, P and interaction N×P are highly significant. Interaction K×L is significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	K_0	K_1	P_0	P_1	Mean
N_0	3124	3096	3106	3114	2941	3279	3110
N_1	3259	3331	3259	3331	3272	3319	3295
N_2	3444	3498	3493	3450	3302	3640	3471
N_3	3653	3561	3588	3626	3577	3637	3607
N_4	3486	3335	3414	3407	3423	3398	3411
Mean	3393	3364	3372	3386	3303	3455	3379
P_0	3302	3304	3274	3332			
P_1	3485	3424	3470	3439			
K_0	3351	3393					
K_1	3435	3335					

C.D. for N marginal means =228·8 Kg/ha.
C.D. for P marginal means =63·5 Kg/ha.
C.D. for K×L table =89·9 Kg/ha.
C.D. for P means at the same level of N=142·1 Kg/ha.
C.D. for N means at the same level of P=250·0 Kg/ha.

64 (109)

(i) 4036 Kg/ha. (ii) (a) 502·5 Kg/ha. (b) 280·7 Kg/ha. (iii) Main effects of N and P are highly significant. Interaction N×P and P×K are significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	K_0	K_1	P_0	P_1	Mean
N_0	3877	3866	3940	3804	3687	4057	3872
N_1	3782	3974	3886	3870	3816	3940	3878
N_2	4219	4282	4305	4195	4150	4350	4250
N_3	4276	4386	4368	4294	4310	4352	4331
N_4	3910	3791	3892	3809	3888	3813	3850
Mean	4013	4060	4078	3994	3970	4102	4036
P_0	3922	4019	4061	3880			
P_1	4104	4101	4096	4109			
K_0	4037	4119					
K_1	3989	4000					

C.D. for N marginal means =273·7 Kg/ha.
C.D. for P marginal means =88·1 Kg/ha.
C.D. for P×K table =124·7 Kg/ha.
C.D. for P means at the same level of N=196·9 Kg/ha.
C.D. for N means at the same level of P=306·6 Kg/ha.

* * *

Crop :- Paddy (*Sornavari*). **Ref :- T.N. 60(83), 61(55).**

Site :- Agri. Res. Stn., Palur. **Type :- 'M'.**

Object :–To evaluate the response of fractional application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super+85 Kg/ha. of A/S for 60(83) ; 5600 Kg/ha. of G.L.+168 Kg/ha. of Super for 61(55). (ii) Loamy soil. (iii) 16.5.60/9.6.60 ; 29.5.61/28.6.61. (iv) (a) 3 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 20 cm.×10 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 to 170 Kg/ha. of Super. (vi) PLR-2. (vii) Irrigated. (viii) 2 weedings. (ix) 18 cm., 62 cm. (x) 20.8.60 ; 22.9.61.

2. TREATMENTS :

5 times of application of 33·6 Kg/ha. of N as A/S : T_1=30 days after planting, $T_2=\frac{1}{2}$ at planting and $\frac{1}{2}$ after 60 days of planting, $T_3=\frac{1}{2}$ at planting and $\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 30 days+$\frac{1}{3}$ after 60 days of planting and $T_5=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 60 days of planting+$\frac{1}{3}$ a week before flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 7·0 m.×3·1 m. for 60(83) ; 5·9 m.×3·2 m. for 61(55). (b) 6·9 m.×2·8 m. for 60(83) ; 5·7 m.×2·9 m. for 61(55) (v) 5 cm.×13 cm. for 60(83) ; 13 cm.×15 cm. for 61(55). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959 to 1961. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Results of expt. no. 59(90) have also been considered while giving combined results. Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 3221 Kg/ha. (ii) 762·8 Kg/ha. (based on 8 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3207	3289	3196	3060	3351

Years	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1960	3256	3297	3151	2370	3361	*	3087	505·5
1961	2763	2960	2928	2978	2666	N.S.	2859	424·8

Crop :- Paddy (*Navarai*). **Ref :- T.N. 60(82).**

Site :- Agri. Res. Stn. Palur. **Type :- 'M'.**

Object :—To evaluate the response of fractional application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super+ 85 Kg./ha. of A/S. (ii) Loamy. (iii) 26.12.60/10.2.61. (iv) (a) 3 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 20 cm.×10 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super. (vi) PLR-2. (vii) Irrigated. (viii) 2 weedings. (ix) 20 cm. (x) 1.5.1961.

2. TREATMENTS :

Same as in expt. nos. 60(83), 61(55) on page 28.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 5·8 m.×4·9 m. (b) 5·7 m.×4·6 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height measurements and grain yield. (iv) (a) 1959 to 1961. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1861 Kg/ha. (ii) 239·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of paddy in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	1822	1980	1768	1840	1894

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(84)**

Site :- Agri. Res. Stn., Paluar. **Type :- 'M'.**

Object :—To evaluate the response of fractional application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super +85 Kg/ha. of A/S. (ii) Loamy. (iii) 10, 11.8.60/29.6.60. (iv) (a) 3 ploughing. (b) Transplantings. (c) 35 Kg/ha. (d) 25 cm. ×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super. (vi) Co.-25. (vii) Irrigated. (viii) 2 weedings. (ix) 104 cm. (x) 19.2.61.

2. TREATMENTS :

5 times of application of N : $T_1=$ 60 days after planting, $T_2=\frac{1}{2}$ at planting and $\frac{1}{2}$ after 60 days of planting. $T_3=\frac{1}{2}$ at planting and $\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting, $\frac{1}{3}$ after 30 days and $\frac{1}{3}$ after 60 days of planting, $T_5=\frac{1}{3}$ at planting, $\frac{1}{3}$ after 60 days of planting and $\frac{1}{3}$ a week prior to flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 5·8 m.×4·9 m. (b) 5·7 m.×4·6 m. (v) 13 cm×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height mesurements and grain yield. (iv) (a) 1959 to 61. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2975 Kg/ha. (ii) 350·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	2925	2889	2982	2903	3174

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 60(37).**

Site :- Agri. Res. Stn., Pattukottai. **Type :- 'M'.**

Object :— To study the effect of time and method of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy, (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy loam. (iii) 30.6.60/21.7.60. (iv) (a) 3 to 4 ploughings (b) Transplanting (c) —. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L+168 Kg/ha. of Super. (vi) Adt-3 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 50 cm. (x) 9.10. 0.

2. TREATMENTS :

5 times of application of N : T_1= 30 days after planting, $T_2=\frac{1}{2}$ at planting$+\frac{1}{2}$ after 30 days of planting, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 15 days$+\frac{1}{3}$ after 30 days of planting and $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ after 15 days of planting$+\frac{1}{3}$ a week before flowering.
N applied at 33·6 Kg/ha. as A/S.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 4·6 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3059 Kg/ha. (ii) 176·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Cg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3184	3017	2939	3006	3148

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(38).**

Site :- Agri. Res. Stn., Pattukottai **Type ;- 'M'.**

Object :— To study the effect of time and method of applications of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super+33·6 Kg/ha. of N as A/S. (ii) Sandy Loam. (iii) 2.8.60/4.9.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) —. (d) 15 cm.× 15 cm. (e) 2. (iv) 5605 Kg/ha. of G.L.+ 168 Kg/ha. of Super. (vi) Co.-25. (late) (vii) Irrigated. (viii) 2 weedings. (ix) 65 cm. (x) 25.1.61.

2. TREATMENTS :

5. times of applications of N : T_1=60 days after planting, $T_2=\frac{1}{2}$ at planting+$\frac{1}{2}$ after 60 days of planting, $T_3=\frac{1}{2}$ at planting+$\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting,+$\frac{1}{3}$ after 30 days+$\frac{1}{3}$ after 60 days of planting, and $T_5=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 30 days of planting+$\frac{1}{3}$ a week pefore flowering.

N applied as A/S at 33·6 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 4·6 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958-1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3878 Kg/ha. (ii) 200·1 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3858	4085	3667	3997	3783

C.D.=241·0 Kg/ha.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 60(39).**

Site :- Agri. Res. Stn., Pattukottai. **Type :- 'M'.**

Object :—To study the time and method of application of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (ii) Sandy loam. (iii) 8.9.60/27.10.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) and (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) Co-25. (vii) Irrigated. (viii) 2 weedings. (ix) 68 cm. (x) 14.2.61.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 60 (38) on page 30.

5. RESULTS :

2846 Kg/ha. (ii) 305·0 K8/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	2718	2937	2783	2950	2842

Crop :- Paddy (*Navarai*), **Ref :- T.N. 62(37).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :—To find out the effect of fractional application of A/S on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Snper. (ii) Sandy loam. (iii) 1.12.62/29.12.62. (iv) (a) 2 ploughings with iron plough and sufficient No. of ploughings with country plough to get a good tilth and levelling. (b) Transplanting. (c) 33·6 Kg/ha. (d) 10 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) T.K.M.—6 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 12 cm. (x) 17.4.63.

2. TREATMENTS :

5 times of appiication of 33·6 Kg/ha. of N as A/S : $T_1=60$ days after planting, $T_2=\frac{1}{2}$ at planting$+\frac{1}{2}$ after 60 days, $T_3=\frac{1}{2}$ at planting$+\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting$+\frac{1}{3}$ one month after planting $+\frac{1}{3}$ two months after planting and $T_5=\frac{1}{3}$ at planting$+\frac{1}{3}$ after two months planting$+\frac{1}{3}$ a week befoee flowering.

3. DESIGNS :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 13·3 m.×1·5 m. (b) 13·2 m.×1·4 m. (v) 1 row all round. (vi) Yes.

4. GEENRAL :

(i) Good. (ii) Nil. (iii) Tiller counts, pannicle length, grain and straw yields. (iv) (a) 1958—1962. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2197 Kg/ha. (ii) 139·0 Kg/ha. (iii) Treatment differenees are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	2249	2107	2232	2141	2254

Crop :- Paddy (*Navarai*). **Ref :- T.N. 62(32).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :—To find out the effect of fractional application of A/S on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy loam. (iii) 13.1.62/16.2.62. (iv) (a) 2 ploughings with iron plough and sufficient No. of ploughings with country plough to get a good tiller. (b) Transplanting. (c) 33·6 Kg/ha. (d) 10 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) T.K.M.—6 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 12 cm. (x) 22.5.62.

2. TREATMENTS : to 4. GENERAL :

Same as in Expt. No, 62(37) on page 32.

5. RESULTS :

(i) 2454 Kg/ha. (ii) 143·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	2505	2598	2388	2422	2356

Crop :- Paddy (*Samba*). **Ref :- T.N. 62(6), 63(12), 64(16).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :—To find out the effect of different levels of N, P and K on the incidence of Paddy helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) As per treatments. (ii) Clayey. (iii) 5.8.1962/5.9.1962; 15.8.63/25.9.63; 20.8.64/30.9.64. (iv) (a) Ploughing and levelling. (b) Transplanting. (c) 33·6 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) G.M. (dose N.A.) for 62(6), 63(12); Nil for 64(16). (vi) T.K.M.—6 (early) for 62(6); Co.—25 for others. (vii) Irrigated. (viii) 1 weeding every month. (ix) N.A. (x) 25.2.63; 27.3.64; 13.3.65.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=44\cdot8$ and $N_2=89\cdot7$ Kg/ha.
(2) 2 levels of P_2O_5 as Super : $P_0=0$, $P_1=33\cdot6$ and $P_2=67\cdot3$ Kg/ha.
(3) 3 levels of K_2O as Pot. Sul. : $K_0=0$, $K_1=33\cdot6$ and $K_2=67\cdot3$ Kg/ha.

P_2O_5 and K_2O applied as basal dressing at the time of planting and N applied as top dressing one month after the application of P and K.

3. DESIGN :

(i) 3^3 Fact. confd. (NPK confd). (ii) (a) 9 plots/block; 3 blocks/replication. (b) 24·7 m.×8·2 m. (iii) 4. (iv) (a) 8·2 m.×2·7 m. (b) 7·6 m.×1·5 m. (v) 30 cm.×61 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Leaf infection and yield of grain. (iv) (a) 1962 to 1964. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous, Treatments×years interaction is present.

5. RESULTS :

(i) 3732 Kg/ha. (ii) 1409·4 Kg/ha. [based on 28 d.f. made up of components N, P, K, N×P and N×K with years]. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Years	N_0	N_1	N_2	K_0	K_1	K_2	Mean
P_0	3246	3827	4149	3596	3883	3743	3741
P_1	2943	3885	4420	3695	3908	3644	3749
P_2	3138	3745	4242	3712	3654	3757	3708
Mean	3109	3819	4270	3668	3815	3715	3732
K_0	3056	3897	4050				
K_1	3181	3793	4472				
K_2	3089	3767	4288				

C.D. for N marginal means=392·7 Kg/ha.

Years	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E./plot
1962	1004	1200	1168	*	1192	1103	1077	N.S.	1107	1135	1130	N.S.	1124	216.6
1963	2897	3593	3842	*	3432	3484	3416	N.S.	3418	3454	3460	N.S.	3444	466.6
1964	5426	6664	7801	*	6597	6662	6632	N.S.	6479	6857	6555	N S.	6630	1013.4
Mean	3109	3819	4270	*	3741	3749	3708	N.S	3668	3815	3715	N.S.	3732	1409·4

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(22).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object : –To study the best time of application of A/S for Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+33·6 Kg/ha. of P_2O_5 as Super. (ii) Light clayey. (iii) 31.8.1960/11.10.1960. (iv) (a) 3 ploughings. (b) Transplanting. (c) Nil. (d) 15·2 m.×15·2 m. (e) 2. (v) 5600 Kg/ha. of G.L.+163 Kg/ha. of Super. (vi) Co.—25. (vii) Irrigated. (viii) N.A. (ix) 84 cm. (x) 14.2.1951.

2 TREATMENTS :

Same as in expt. no. 62(37) on page 31.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) Nil. (iii) 6. (iv) (a) 13·6 m.×1·8 m. (b) 13·3 m.×1·5 m. (v) 1 row all round. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Slight attack of stem borer. (iii) Grain yield. (iv) (a) 1958—62. [Expt. not conducted in 1961]. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1908 Kg/ha. (ii) 206·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	1804	1912	1826	2050	1949

Crop :- Paddy (*Sornavari*). **Ref :- T.N. 60(20), 61(27), 62(36).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :—To find out the effect of fractional application of A/S on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy for 60 (20) ; Nil for others. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super for 60 (20) ; 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Light loam for 60 (20) ; Sandy loam for others. (iii) 27.3.60/24, 25.4.60 ; 11.4.61/20.5.61 ; 10.4.62/12.5.62. (iv) (a) 3 ploughings for 60 (20) ; more than 3 ploughings and levelling for others. (b) Transplanting. (c) 34 Kg/ha. (d) 10 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) TKM-6 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 26 cm., 51 cm., 35 cm. (x) 26.7.60, 17.8.61, 16.8.62.

2. TREATMENTS :

5 times of application of 33·6 Kg/ha. of N as A/S : T_1=30 days after planting, $T_2=\frac{1}{2}$ at planting+$\frac{1}{2}$ one month after planting, $T_3=\frac{1}{2}$ at planting+$\frac{1}{2}$ a week before flowering, $T_4=\frac{1}{3}$ at planting+$\frac{1}{3}$ after 15 days+$\frac{1}{3}$ one month after planting and $T_5=\frac{1}{3}$ at planting+$\frac{1}{3}$ one month after planting+$\frac{1}{3}$ a week before flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 13·3 m.× 1·5 m, (b) 13·2 m.×1·4 m. (v) 5 cm.×5 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958-62 (modified in 1960). (b) No. (c) Results of combined analysis are given under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

60(20)

(i) 3009 Kg/ha. (ii) 111·2 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3193	3021	2859	2898	3074

C.D.=133·9 Kg/ha.

61(27)

(i) 2589 Kg/ha. (ii) 376·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	2577	2351	2634	2818	2566

62(36)

(i) 3624 Kg/ha. (ii) 374·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	3649	3501	3744	3756	3493

Crop :- Paddy (*Samba*). **Ref :- T.N. 62(54), 63(64), 64(75).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :—To study the comparative efficacy of C/A/N over other nitrogenous fertilizers on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow for 62 (54) ; Paddy for others. (c) Nil for 62 (54) ; 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Sandy loam. (iii) 10.9.62/4.11.62 ; 5.9.63/18.10.63 ; 26.8.64/11.10.64. (iv) (a) 2 ploughings with iron plough+sufficient number of ploughings with country plough. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.× 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) Co-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 67 cm., 83 cm., 87 cm. (x) 2.3.1963 ; 18.2.1964 ; 16.2.1965.

2. TREATMENTS :

All combinations of (1) and (2) with a control.

(1) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.

(2) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.

N applied as top dressing 50 days after planting.

3. DESIGN :

(i) Fact. in R.B D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 6·6 m.×1·5 m. for 62 (54) ; 6·7 m.×4·6 m. for others. (b) 6·5 m.×1·3 m. for 62 (54) ; 6·6 m.×4·3 m. for others. (v) 8 cm.× 12 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1965. (b) No. (c) Nil. (v) Aduthurai, Ambasamudram and Coimbatore. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

62(54)

(i) 1947 Kg/ha. (ii) 251·2 Kg/ha. (iii) 'Control vs. others' is highly significant. Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

Control=1502 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	1842	2053	1748	1881
N_2	2083	2065	2336	2161
Mean	1963	2059	2042	2021

C.D. for N marginal means=215·4 Kg/ha.

C.D. for 'control vs. others'=285·0 Kg/ha.

63(64)

(i) 2933 Kg/ha. (ii) 372·8 Kg/ha. (iii) 'Control vs. others' alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=2441 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2665	3113	2830	2869
N_2	3083	3433	2965	3160
Mean	2874	3273	2898	3015

C.D. for 'control vs. others'=423·0 Kg/ha.

64(75)

(i) 3501 Kg/ha. (ii) 151·6 Kg/ha, (iii) 'Control vs. others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3083 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	3437	3638	3475	3517
N_2	3528	3694	3651	3624
Mean	3483	3666	3563	3571

C.D. for 'control *vs.* others'=172·0 Kg/ha.

* * *

Crop :- Paddy (*Navarai*).

Site :- Rice Res. Stn., Tirurkuppam.

Ref :- T.N. 63(62), 64(73), 65(16).

Type :- 'M'.

Object :— To find out the comparative efficacy of C/A/N over other nitrogenous fertilizers on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. for 63 (62) ; 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Sandy loam. (iii) 4.1.63/10.2.63 ; 22.1.64/22.2.64 ; 12.1.65/ 22.2.65. (iv) (a) 2 ploughings with iron plough+sufficient number of ploughings by country plough. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×10 cm. for 63 (62) ; 20 cm.×10 cm. for others. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) T.K.M.-6 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 9 cm.; Nil ; 1 cm. (x) 15.5.1963 ; 14.5.64 ; 21.5.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control.

(1) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.

(2) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.

N was applied 20 days after Transplanting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 6·6 m.×1·5 for 63 (62) ; 6·7 m.×4·6 m. for others. (b) 6·5 m.×1·3 m. for 63 (62) ; 6·6 m.×4·4 m. for others. (v) 5 cm.×12 cm. for 63 (62) ; 5 cm.×10 cm. for other. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1965. (b) No. (c) Results of combined analysis are given under 5. (v) Aduthurai, Ambasamudram and Comibatore. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 2581 Kg/ha. (ii) 183·6 Kg/ha. (based on 66 d.f. made up of pooled error and Treatments×years interaction). (iii) Main effects of N, S and 'control vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=2218 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2448	2641	2597	2562
N_2	2582	2832	2752	2722
Mean	2515	2736	2674	2642

C.D. for N marginal means=86·5 Kg/ha.
C.D. for S marginal means=105·9 Kg/ha.
C.D. for 'control vs. others'=114·4 Kg/ha.

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	Control	G.M.	SE./plot.
1963	2646	2893	2834	**	2749	2833	NS.	2225	2710	119·3
1964	2970	3089	2956	NS.	2888	3122	**	2492	2931	206·8
1965	1929	2229	2234	**	2050	2211	**	1937	2103	175·4
Mean	2515	2736	2674	**	2562	2722	**	2218	2581	183·6

Crop :- Paddy (*Sornavari*). **Ref :- T.N. 63(63), 63(74), 65(17).**
Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'M'.**

Object :— To study the comparative efficacy of C/A/N over other nitrogenous fertilizers on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. for 63 (63) ; 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S for others. (ii) Sandy loam. (iii) 1.5.63/2.6.1963 ; 1.5.64/7.6.64 ; 1.5.65/29.5.65. (iv) (a) 2 ploughings. with iron plough+sufficient number of ploughings with country plough. (b) Transplanting. (c) 34 Kg/ha. (d) 20 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) T.K.M.-6 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 44 cm.; 43 cm., 32 cm. (v) 13.9.63 ; 15.9.64 ; 3.9.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control.
(1) 2 levels of N : N_1=22·4 and N_2=33·6 Kg/ha.
(2) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.
N was applied 20 days after transplanting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 6·6 m.×1·5 m. for 63 (63) ; 6·7 m.×4·6 m. for others. (b) 6·5 m.×1·3m. for 63 (63) ; 6·6 m.×4·4 m. for others. (v) 5 cm.×10 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1962 to 1965. (b) No. (c) Nil. (v) Aduthurai, Ambasamudram and Coimbatore. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

63(63)

(i) 3113 Kg/ha. (ii) 427·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2869 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2801	3129	3596	3175
N_2	3273	2969	3152	3131
Mean	3037	3049	3317	3153

64(74)

(i) 3193 Kg/ha. (ii) 227·0 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3104 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	3219	3063	3403	3228
N_2	3162	2971	3431	3188
Mean	3191	3017	3417	3208

C.D. for S marginal means=238·5 Kg/ha.

65(17)

(i) 3812 Kg/ha. (ii) 218·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3952 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	4023	3854	3663	3847
N_2	3920	3640	3769	3776
Mean	3972	3747	3716	3812

Crop :- Paddy (*Kharif*). **Ref :- T.N. 60, 61, 62, 63, 64(M.A.E).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type II – To study the effect of different levels of N, P, K and F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. (iii) 6.6.60/1.7.60; 19.6.61/12, 13.7.61 6.6.62/8, 9.7.62; 16.7.63; 24.7.64. (iv) (a) 3 diggings. (b) Broadcasting in nursery. (c) 56 Kg/ha. (d) 10 cm.×10 cm. (e) N.A. (v) As per treatments. (vi) A.D.T.—3 (95 days). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 17.9.60; 23, 25.9.61; 19, 20.9.62; 25.9.63; 5.10.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 levels of F.Y.M. : $F_0=0$ and $F_1=5600$ Kg/ha.
(2) 3 levels of N as A/S : $N_0=0$, $N_1=33·6$ and $N_2=67·2$ Kg/ha.
(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=33·6$ and $P_2=67·2$ Kg/ha.
(4) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=33·6$ and $K_2=67·2$ Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Fact. confd. (ii) (a) 9 plots/block; 6 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 9·8 m.×4·9 m. (b) 9·3 m.×4·5 m. for 60; 9·1 m.×4·3 m for other years. (v) and (vi) Yes.

4. GENERAL :

(i) Lodging occured on 3.9.60 and 5.9.60. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1960 to 196.4 (b) No. (c) Nil. (v) N.A. (vi) Due to heavy rain on 4.9.60, some area got lodged. Rats and parrots also caused damaged to earheads in 1960. (vii) Nil.

5. RESULTS :

1960

(i) 4201 Kg/ha. (ii) 286·4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3806	4397	4454	4141	4364	4212	4221	4314	4182	4239
F_1	3762	4281	4444	4088	4303	4095	4230	4041	4215	4162
Mean	3784	4339	4479	4115	4334	4153	4226	4178	4199	4201
K_0	3836	4432	4410	4201	4273	4204				
K_1	3622	4386	4526	4042	4290	4202				
K_2	3895	4199	4502	4103	4439	4054				
P_0	3702	4258	4385							
P_1	3947	4382	4673							
P_2	3703	4377	4379							

C.D. for N marginal means=197·0 Kg/ha.

1961

(i) 3389 Kg/ha. (ii) 330·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3274	3597	3283	3357	3597	3200	3376	3357	3422	3385
F_1	3283	3394	3505	3348	3385	3449	3440	3293	3449	3394
Mean	3278	3495	3394	3352	3491	3324	3408	3325	3435	3389
K_0	3412	3532	3280	3376	3412	3436				
K_1	3099	3514	3361	3293	3468	3214				
K_2	3323	3439	3543	3388	3593	3323				
P_0	3182	3542	3332							
P_1	3431	3532	3510							
P_2	3221	3411	3340							

1962

(i) 3096 Kg/ha. (ii) 279·2 Kg/ha. (iii) Main effect of N is highly significant. Interactions F×N and F×P are significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2763	3300	2995	3089	2925	3044	2998	3172	2888	3019
F_1	2805	3263	3445	2977	3325	3211	3117	3244	3152	3171
Mean	2785	3283	3221	3034	3126	3129	3059	3209	3021	3096
K_0	2760	3189	3227	2988	3071	3117				
K_1	2877	3363	3387	3280	3216	3130				
K_2	2718	3296	3049	2834	3091	3139				
P_0	2630	3165	3308							
P_2	2933	3348	3098							
P_2	2794	3335	3257							

C.D. for N marginal means =192·1 Kg/ha.
C.D. for body of F×N or F×P tables=271·6 Kg/ha.

1963

(i) 3570 Kg/ha. (ii) 403·5 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3213	3620	3892	3623	3626	3475	3346	3706	3673	3575
F_1	3338	3714	3645	3648	3359	3690	3611	3555	3532	3566
Mean	3275	3667	3769	3636	3492	3583	3478	3630	3602	3570
K_0	3001	3674	3759	3602	3463	3370				
K_1	3387	3618	3887	3670	3592	3629				
K_2	3437	3709	3660	3635	3422	3749				
P_0	3257	3693	3957							
P_1	3267	3515	3695							
P_2	3301	3792	3654							

C.D. for N marginal means=277·6 Kg/ha.

1964

(i) 3202 Kg/ha. (ii) 266·8 Kg/ha. (iii) Main effect of N is highly significant. Interaction F×N is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2822	3308	3493	3296	3098	3230	3134	3247	3243	3208
F_1	3014	3360	3216	3243	3142	3205	3211	3302	3077	3197
Mean	2918	3334	3354	3269	3120	3217	3172	3275	3160	3202
K_0	2844	3276	3396	3236	3016	3265				
K_1	3020	3403	3401	3364	3275	3185				
K_2	2891	3322	3266	3208	3069	3202				
P_0	3042	3280	3485							
P_1	2818	3281	3261							
P_2	2895	3440	3317							

C.D. for N marginal means =183·6 Kg/ha.
C.D. for body of F×N table =259·6 Kg/ha.

Crop :- Paddy *(Rabi)*. **Ref :- T.N. 60, 61, 62, 63, 64(M.A.E).**

Site :- M.A.E. Centre, Aduthurai. Type :- 'M'.

Object :—Type II—To study the effect of different levels of N, P, K and F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 17.8.60/1.10.60 ; 23.8.61/6 7. ; 10.61 ; 17.8.62/27.9.62 ; 8.10.63 ; 21.10 1964. (iv) (a) 2 diggings. (b) Broadcasting. (c) 33·6 to 39·2 Kg/ha. (d) 15 cm.×15 cm. (e) N.A. (v) As pertreatments. (vi) Co.—25 (195 days). (vii) Irrigated for 60, 63 ; N.A. for others. (viii) and (ix) N.A. (x) 5.2.1961 ; 12.2.1962 ; 8.2.1963 ; 19.2.1964 ; 28.2.1965.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

2 levels of F.Y.M. : F_0=0 and F_1=5604 Kg/ha.
3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.
3 levels of P_2O_5 as Super: P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.
3 levels of K_2O as Mur. Pot. : K_0=0, K_1=33·6 and K_2=67·2 Kg/ha.

3. DESIGN :

(i) $3^3\times2$ Fact. confd. (ii) (a) 9 plots/block; 6 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 9·8 m.×4·9 m. (b) 9·1 m.×4·3 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960 to 1964. (b) and (c) N.A. (v) At many other centres. (vi) N.A. (vii) Nil.

5. RESULTS :

1960

(i) 2539 Kg/ha. (ii) 180·1 Kg/ha. (iii) Interaction F×P and F×K are significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2419	2566	2508	2413	2475	2605	2522	2451	2521	2498
F_1	2639	2499	2606	2653	2575	2516	2488	2733	2522	2581
Mean	2529	2532	2557	2533	2525	2560	2505	2592	2521	2539
K_0	2439	2540	2536	2410	2522	2583				
K_1	2679	2486	2611	2592	2623	2561				
K_2	2469	2570	2523	2597	2430	2536				
P_0	2550	2518	2531							
P_1	2481	2492	2602							
P_2	2556	2586	2538							

C.D. for body of F×P or F×K table=175·1 Kg/ha.

1961

(i) 3550 Kg/ha. (ii) 245·4 Kg/ha. (iii) Main effect of F and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3445	3406	3392	3349	3629	3266	3537	3311	3395	3414
F_1	3674	3682	3701	3577	3812	3668	3729	3677	3651	3686
Mean	3559	3544	3546	3463	3720	3467	3629	3494	3523	3950
K_0	3668	3744	3488	3497	3829	3574				
K_1	3552	3440	3489	3309	3729	3443				
K_2	3459	3448	3663	3583	3603	3383				
P_0	3486	3491	3412							
P_1	3665	3669	3827							
P_2	3528	3472	3400							

C.D. for F marginal means=137·8 Kg/ha.
C.D. for P marginal means=168·6 Kg/ha.

1962

(i) 3867 Kg/ha. (ii) 228·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3867	3896	3742	3805	3799	3901	3842	3819	3845	3835
F_1	4001	3892	3802	3887	3873	3935	3938	3876	3881	3898
Mean	3934	3894	3772	3846	3836	3918	3890	3847	3863	3867
K_0	4002	3904	3763	3806	3896	3968				
K_1	3836	3883	3823	3832	3700	4010				
K_2	3964	3895	3729	3900	3913	3776				
P_0	4032	3900	3605							
P_1	3840	3819	3849							
P_2	3930	3964	3861							

1963

(i) 2611 Kg/ha. (ii) 270·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2493	2497	2825	2529	2656	2631	2562	2574	2679	2605
F_1	2621	2626	2605	2617	2602	2632	2617	2616	2618	2617
Mean	2557	2561	2715	2573	2629	2631	2589	2595	2649	2611
K_0	2490	2682	2596	2622	2552	2594				
K_1	2466	2520	2799	2547	2596	2642				
K_2	2715	2481	2750	2551	2738	2657				
P_0	2617	2396	2706							
P_1	2668	2575	2643							
P_2	2385	2713	2795							

1964

(i) 3002 Kg/ha. (ii) 217·0 Kg/ha. (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2833	2839	2919	2685	2902	3004	2830	2853	2908	2864
F_1	3048	3218	3153	3064	3172	3184	3129	3179	3111	3140
Mean	2940	3029	3036	2875	3037	3094	2980	3016	3010	3002
K_0	2849	3085	3005	2917	2957	3065				
K_1	2992	3037	3019	2849	3062	3137				
K_2	2980	2965	3085	2859	3092	3079				
P_0	2808	2933	2884							
P_1	2996	3064	3051							
P_2	3017	3090	3174							

C.D. for P marginal means=149·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63, 64(M.A.E).**

Site :- M.A.E. Centre, Melasval. **Type :- 'M'.**

Object :—Type II—To study the effect of different levels of N, P, K and F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sand alluvium. (iii) 6.5.63 ; 20.4.64. (iv) and (v) N.A. (vi) Co.—29. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.7.63; 17.7.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)
(1) 2 levels of F.Y.M. : $F_0=0$ and $F_1=5604$ Kg/ha.
(2) 3 levels of N as A/S : $N_0=0$, $N_1=33·6$ and $N_2=67·2$ Kg/ha.
(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=33·6$ and $P_2=67·2$ Kg/ha.
(4) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=33·6$ and $K_2=67·2$ Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Fact. confd. (ii) (a) 9 plots/block; 3 blocks each under F_0 and F_1. (b) Nil. (iii) 1. (iv) (a) 10·7 m.×4·6 m. (b) 9·1 m.×3·0 m. (v) 76 cm.×76 cm. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

1963

(i) 1882 Kg/ha. (ii) 319·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	1712	1947	1810	1962	1816	1690	1811	1773	1884	1823
F_1	1850	1899	2073	2054	1936	1832	1983	2034	1805	1941
Mean	1781	1923	1941	2008	1876	1761	1897	1904	1844	1882
K_0	1795	2067	1828	2082	1951	1658				
K_1	1695	1850	2166	1940	1964	1807				
K_2	1853	1851	1829	2002	1714	1817				
P_0	1857	1942	2225							
P_1	1738	1984	1906							
P_2	1748	1843	1692							

1964

(i) 2219 Kg/ha. (ii) 196·0 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2097	2217	2320	2132	2210	2292	2222	2236	2176	2211
F_1	2042	2377	2262	2172	2361	2148	2245	2302	2134	2227
Mean	2070	2297	2291	2152	2286	2220	2234	2269	2155	2219
K_0	2031	2279	2391	2183	2240	2279				
K_1	2068	2362	2378	2289	2289	2229				
K_2	2110	2250	2104	1985	2328	2151				
P_0	2094	2133	2229							
P_1	2058	2485	2315							
P_2	2058	2774	2328							

C.D. for N marginal means=130·7 Kg/ha.

Crop :- Paddy (*Rabi*).
Site :- M.A.E. Centre, Melasval.

Ref :- T.N. 62, 63, 64(M.A.E).
Type :- 'M'.

Object :—Type II—To study the effect of different levels of N, P, K and F.Y.M. on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy alluvium. (iii) 28.10.62/3, 4.12.62 ; 8.12.63 ; 15.12.64. (iv) and (v) N.A. (vi) Asd.—5 (135 days). (vii) Irrigated. (viii) and (ix) Nil. (x) 8.4.63; 27.3.64; 27.3.65.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 levels of F.Y.M., $F_0=0$ and $F_1=5604$ Kg/ha.
(2) 3 levels of N as A/S : $N_0=0$, $N_1=33{\cdot}6$ and $N_2=67{\cdot}2$ Kg/ha.
(3) 3 levels of P as P_2O_5 : $P_0=0$, $P_1=33{\cdot}6$ and $P_2=67{\cdot}2$ Kg/ha.
(4) 3 levels of K as Mur. Pot. : $K_0=0$. $K_1=33{\cdot}6$ and $K_2=67{\cdot}2$ Kg/ha.

3. DESIGN :

(i) $3^2 \times 2$. (ii) (a) 9 plots/block, 3 blocks for each of F_0 and F_1. (b) N.A. (iii) 1. (iv) (a) 9·8 m.×4·9 m. (b) 9·1 m.×4·3 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain, (iv) (a) 1962—64. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

1962

(i) 2323 Kg/ha. (ii) 217·8 Kg/ha. (iii) Interaction N×P alone is significant. (iv) Av. yield of grain Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2308	2325	2305	2241	2396	2301	2248	2347	2348	2313
F_1	2340	2332	2330	2280	2408	2315	2216	2441	2346	2334
Mean	2324	2329	2317	2260	2402	2308	2232	2394	2344	2323
K_0	2345	2250	2101	2210	2426	2060				
K_1	2349	2413	2420	2249	2463	2470				
K_2	2778	2324	2431	2322	2318	2393				
P_0	2110	2212	2460							
P_1	2414	2377	2415							
P_2	2448	2398	2077							

C.D. for means in the body of (N×P) table=373·4 Kg/ha.

1963

(i) 3049 Kg/ha. (ii) 236·1 Kg/ha. (iii) Main effect of F, N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2554	3000	3158	2745	2871	3096	2963	2909	2841	2904
F_1	2843	3163	3577	3115	3145	3323	3202	3254	3127	3194
Mean	2699	3082	3367	2930	3008	3210	3083	3081	2984	3049
K_0	2803	2919	3526	2873	3166	3209				
K_1	2670	3228	3346	2974	2965	3304				
K_2	2624	3098	3230	2943	2893	3116				
P_0	2557	2909	3324							
P_1	2736	3147	3142							
P_2	2803	3190	3636							

C.D. of N, or P marginal means =154·1 Kg/ha.
C.D. of F marginal means =125·8 Kg/ha.

1964

(i) 599 Kg/ha. (ii) 393·9 Kg/ha. (iii) Main effect of N alone is significant. (iv) Av. yield of grain Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	422	695	875	586	688	719	696	766	531	664
F_1	391	508	703	469	547	586	578	578	445	534
Mean	407	601	789	527	617	653	637	672	488	594
K_0	387	609	914	750	563	598				
K_1	457	727	832	445	750	821				
K_2	376	468	621	387	539	539				
P_0	422	340	820							
P_1	352	620	879							
P_2	446	844	668							

C.D. of N, marginal means =257·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 62, 63, 64, 65(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type V(a) : To study the effect of levels and methods of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Coastal alluvium. (iii) 11.6.1962/12.7.1962. 20.7.63, 25.7.64, N.A. (iv) (a) to (e) N.A. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) ADT-3 (95 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 22, 23.9.62 ; 29.11.63 ; 10.12.64, N.A.

2. TREATMENTS :

All combinations of (1) and (2)+a control.

(1) 3 levels of N as A/S : N_1=33·6 and N_2=50·4 and N_3=67·2 Kg/ha.

(2) 4 methods of application of N : M_1=Broadcast just before puddling, M_2=Broadcast at planting, M_3=Broadcast half at planting and half about a month after planting and M_4=Application in the form of pellets about three weeks after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 7·3 m.×3·1 m. (b) 6·7 m.×2·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962—1965. (b) N.A. (c) Nil. (v) (a) Bhavanisagar, Meleseval. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

1962

(i) 3717 Kg/ha. (ii) 428·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3940 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3579	3307	3856	3831	3643
N_2	3656	3701	3529	3939	3706
N_3	3870	3809	3701	3601	3745
Mean	3702	3606	3695	3790	3698

1963

(i) 3601 Kg/ha. (ii) 732·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3146 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3432	3642	4042	3463	3645
N_2	3513	3388	4160	3351	3603
N_3	3382	3799	4092	3407	3670
Mean	3442	3610	4098	3407	3639

1964

(i) 3294 Kg/ha. (ii) 475·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3589 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3218	3370	2963	3352	3226
N_2	3447	3774	3255	2922	3349
N_3	3503	3210	2889	3325	3232
Mean	3389	3451	3036	3200	3269

1965

(i) 4308 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Control=3830 Kg/ha.

Treatment	N_1	N_2	N_3	M_1	M_2	M_3	M_4
Av. yield	4344	4191	4510	4059	4428	4314	4589

Crop :- Paddy (*Rabi*). **Ref :- T.N. 62, 63, 64 & 65(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type V(a) : To study the effect of levels and methods of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 20.8.62/5.10.62, 9.10.63, 31.10.64 ; N.A. (iv) and (v) N.A. (vi) CO-25. (vii) Irrigated. (viii) and (ix) N.A. (x) 10.2.1963 ; 16.2.64 ; 2.3.65 ; N.A.

2. TREATMENTS :
Same as in expt. Type V (a) conducted at Aduthurai (kharif) on page 46.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 9·8 m. × 3·7 m. (b) 9·1 m. × 3·1 m. (v) 30 cm. × 30 cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—1964. (b) No. (c) Nil. (v) and (vi) N.A. (vii) Error variances are heterogeneous and Treatments × years interaction is absent.

5. RESULTS :

1962

(i) 3783 Kg/ha. (ii) 574·3 Kg/ha. (iii) Main effect of M alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=3960 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3410	3620	3990	3890	3728
N_2	3500	3770	4260	4040	3892
N_3	3580	3320	3520	4320	3685
Mean	3497	3570	3923	4083	3768

C.D. for M marginal means=475·9 Kg/ha.

1963

(i) 4849 Kg/ha. (ii) 768·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=4434 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_0	4471	4482	4790	5473	4804
N_1	5056	4774	4832	4365	4757
N_2	5002	4827	5192	5343	5091
Mean	4843	4694	4938	5060	4884

1964

(i) 3963 Kg/ha. (ii) 514·2 Kg/ha. (iii) Main effect of M and 'control *vs.* others' are significant. (iv) Av. yield of grain in Kg/ha.

Control=3359 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	4125	3339	3926	4039	3857
N_2	4128	3856	3743	4745	4118
N_3	3519	3991	4391	4352	4063
Mean	3924	3729	4020	4379	4013

C.D. for M marginal means=426·1 Kg/ha.
C.D. for control *vs.* others =543·2 K/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 64(M.A.E.).**

Site :- M.A.E. Centre, Bhawanisagar. **Type :- 'M'.**

Object :—Type V(a) : To study the effect of levels and methods of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Red loam. (iii) 21.9.1964. (iv) (a) to (e) Nil. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) TKM-6 (120 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 22.11.1964.

2. TREATMENTS :

All combinations of (1) and (2)+a control
(1) 3 levels of N as A/S : N_1=33·6, N_2=50·4 and N_3=67·2 Kg/ha.
(2) 4 methods of application of N : M_1=Broadcast just before puddling, M_2=Broadcast at planting, M_3=Broadcast half at planting and half about a month after planting and M_4=Application in the form of pellets about three weeks after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964—1966. (b) No. (c) Nil. (v) (a) Aduthurai. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 3272 Kg/ha. (ii) 229·0 Kg/ha. (iii) Main effects of M, N and "control *vs.* others" are highly significant. Interaction M×N is significant. (iv) Av. yield of grain in Kg/ha.

Control=2619 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	2915	2827	3019	3608	3092
N_2	3153	2819	3086	4123	3295
N_3	3781	3115	3231	4240	3592
Mean	3283	2920	3112	3990	3326

C.D. for M marginal means =189·7 Kg/ ha.
C.D. for N marginal means =164·1 Kg/ha.
C.D. for body of M×N table =327·8 Kg/ha.
C.D. for control *vs.* others =241·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63 and 64(M A.E.).**

Site :- M.A.E. Centre, Melasval. **Type :- 'M'.**

Object :—Type V(a) : To study the effect of levels and methods of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 5.5.1963, 20.4.64. (iv) (a) to (e) N.A. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) CO-29(115 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 24.7.1963, 17.7.64.

2. TREATMENTS and 3. DESIGN :

Same as in type V(a) conducted at Aduthurai (kharif) on page 46.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963—1964. (b) No. (c) Nil. (v) (a) Aduthurai, Bhavanisagar. (b) Nil. (vi) N.A. (vii) Nil.

5. RESULTS :

1963

(i) 3343 Kg/ha. (ii) 306·0 Kg/ha. (iii) 'Control vs. others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=2794 Kg/ha.

	M_1	M_2	M_3	N_4	Mean
N_1	3150	3322	3268	3645	3346
N_2	3490	3302	3368	3457	3404
N_3	3388	3233	3514	3526	3415
Mean	3343	3286	3383	3543	3389

C.D. for 'control *vs.* others' =323·3 Kg/ha.

1964

(i) 2777 Kg/ha. (ii) 336·1 Kg/ha. (iii) Control *vs.* others alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=2234 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3021	2487	2487	2994	2747
N_2	3021	2930	2749	2921	2905
N_3	2749	2831	2930	2749	2815
Mean	2930	2749	2722	2888	2822

C.D. for 'control *vs.* others'=355·1 Kg/ha.

Crop :- Paddy (*Rabi*).

Ref :- T.N. 62, 63 & 64(MAE).

Site :- M A.E. Centre, Melasval.

Type :- 'M'.

Object :—Type V(a) : To study the effect of levels and methods of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy alluvium. (iii) 28.10.62/30.11.62 ; 7.12.63 ; N.A. (iv) (a) to (e) N.A. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) ASd-5(135 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 4.4.1963 ; 30.3.64, N.A.

2. TREATMENTS :

Same as in expt. type V(a) conducted at Aduthurai (kharif) on page 46.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 8·5 m.×4·6 m. (b) 7·8 m.×4·1 m. (v) 38 cm.×23 cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—1964. (b) No. (c) Nil. (v) (a) Aduthurai. (b) Nil. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

1962

(i) 2829 Kg/ha. (ii) 391·5 Kg/ha. (iii) "Control *vs.* others" alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=2380 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	2841	2679	2990	2495	2751
N_2	2981	2675	2947	2914	2879
N_3	2954	2987	2941	2985	2967
Mean	3925	2780	2959	2798	2866

C.D. for control vs. others=393·4 Kg/ha.

1963

(i) 4178 Kg/ha. (ii) 295·2 Kg/ha. (iii) Main effect of M and control *vs.* others are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3351 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	3967	3659	4485	4285	4099
N_2	4208	3817	4598	4521	4286
N_3	4249	4285	4449	4444	4357
Mean	4141	3920	4511	4417	4247

C.D. for M marginal means=244·6 Kg/ha.
C.D. for control vs. others =311·9 Kg/ha.

1964

(i) 635 Kg/ha. (ii) 286·8 Kg/ha. (iii) Control *vs.* others is highly significant. Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

Control=249 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	619	536	496	496	537
N_2	536	1073	1154	577	835
N_3	579	907	494	536	629
Mean	578	839	715	536	667

C.D. for N marginal means=205·8 Kg/ha.
C.D. for control vs. others=303·0 Kg/ha.

Crop :- Paddy (*Rabi*). **Ref :- T.N. 60 and 61(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type V : To study the effect of different times of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) N.A. (ii) Coastal alluvium. (iii) 14.9.60/30, 31.10.60 ; 18.8.61/28.9.61. (iv) (a) 3 puddlings. (b) Broadcasting. (c) 33 to 39 Kg/na. for 60, 35 Kg/ha. for 61. (d) 15 cm. × 15 cm. (e) N.A. (v) 22·4 Kg/ha. of P_2O_5 as triple super and 5604 Kg/ha. of F.Y.M. (vi) CO-25 (195 days). (vii) Irrigated (viii) and (x) N.A. (x) 9.3.61 ; 12.2.62,

2. TREAMENTS :

All combinations of (1) and (2)+a control

(1) 2 sources of 44·8 Kg/ha. of N : S_1=Urea and S_2=A/S.

(2) 7 times of application of N : T_1=Full dose before planting, T_2=Full dose at planting, T_3=Full dose at tillering, T_4=$\frac{1}{2}$ before planting+$\frac{1}{2}$ at tillering, T_5=$\frac{1}{2}$ at planting +$\frac{1}{2}$ at tillering, T_6=$\frac{1}{3}$ before planting+$\frac{1}{3}$ at tillering+$\frac{1}{3}$ at flowering and T_7=$\frac{1}{3}$ at planting+$\frac{1}{3}$ at tillering+$\frac{1}{3}$ at flowerings.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 9·8 m. × 3·7 m. for 60 ; 10·7 m. × 2·4 m. for 61. (b) 9·1 m. × 3·1 m. for 60 ; 10·1 m. × 1·8 m. for 61. (v) 30 cm. × 30 cm. for 60 and 61.

4. GENERAL :

(i) Lodging occurred on 4.3.61. (ii) Mealy bugs noticed. (iii) Yield of grain. (iv) (a) 1958—1961. (b) No. (c) Nil. (v) N.A. (vi) Heavy rains in early stages damaged the crop. (vii) Error variances are heterogeneous and Treatments × years interaction is absent.

5. RESULTS :

1960

(i) 2223 Kg/ha. (ii) 395·7 Kg/ha. (iii) 'Control vs. others' alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=1645 Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Mean
S_1	2136	2633	2684	2315	2403	2346	2037	2365
S_2	1976	2234	2021	2386	2377	2108	2045	2164
Mean	2056	2433	2352	2350	2390	2227	2041	2264

C.D. for control vs. others=484·3 Kg/ha.

1961

(i) 4076 Kg/ha. (ii) 698·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3791 Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Mean
S_1	3920	4464	4141	4233	3302	4058	4021	4020
S_2	3643	3772	3947	5036	4077	4990	3745	4173
Mean	3782	4118	4044	4634	3690	4524	3883	4096

Crop :- Paddy (*Kharif*). **Ref :- T.N. 60(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type VI : To study the effect of placement of fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 22.6.1960/14.7.1960. (iv) (a) 4 puddlings. (b) Broadcasting in nursery. (c) 56 Kg/ha. (d) 10 cm. × 10 cm. (e) Nil. (v) N.A. (vi) ADT-20. (vii) Irrigated. (viii) One weeding. (ix) N.A. (x) 1.10.1960.

2. TREATMENTS :

All combinations of (1), (2) and (3)+1 control in eaeh block

(1) 3 sources of P_2O_5 : S_1=Super, S_2=Ammo. Phos. and S_3=Di-calcium Phos.

(2) 2 levels of P_2O_5=P_1=22·4 and P_2=44·8 Kg/ha.

(3) 3 methods of application : M_1=Broadcasting at puddling, M_2=Dipping the seedlings in mud containing fertilizers and M_3=In pellet form.

Fertilizers applied on 14.7.1960.

3. DESIGN :

(I) $3^2 \times 2+1$ confd. (S × M and P × S × M confd.). (ii) (a) 7 plots/block and 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) 6·7 m. × 3·4 m. (b) 6·1 m. × 2·7 m. (v) 30 cm. × 30 cm. (vi) Yes.

4. GENERAL :

(i) Lodging on 27th September. (ii) Rats damaged the plants and parrots destroyed the earheads. (iii) Nil. (iv) (a) 1956—1960. Not conducted in 58, 59. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4093 Kg/ha. (ii) 329·3 Kg/ha. (iii) 'Control *vs.* others' is highly significant and interaction S × M is significant. (iv) Av. yield of grain in Kg/ha.

Control=3772 Kg/ha.

	M_1	M_2	M_3	S_1	S_2	S_3	Mean
P_1	4040	4058	4132	4030	4160	4040	4077
P_2	4298	4335	4012	4160	4169	4316	4215
Mean	4169	4196	4072	4095	4164	4178	4146
S_1	4141	4279	3865				
S_2	4012	4141	4339				
S_3	4354	4168	4012				

C.D. for body of S × M table =330·1 Kg/ha.

C.D. for control vs. others =205·9 Kg/ha.

Crop :- Paddy (*Rabi*). **Ref :- T.N. 60(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type : VI(TCM) :—To find out the residual effect of P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 17.8.1960/2.10.1960. (iv) (a) 2 diggings. (b) Broadcasting in nursery. (c) 33·6 to 39·2 Kg/ha. (d) 13 cm. × 13 cm. (e) Nil. (v) Nil. (vi) CO-19, (190 days.) (vii) Irrigated. (viii) One weeding. (ix) Nil. (x) 9.2.1961.

2. TREATMENTS :

Treatment	1	2	3	4	5	6	7	8	9	10	11	12
1st year	O	C	C	P_1	P_2	O	O	O	O	$P_{\frac{1}{2}}$	P_1	P_2
2nd year	O	C	C	O	O	P_1	P_2	O	O	$P_{\frac{1}{2}}$	P_1	P_2
3rd year	O	C	C	O	O	O	O	P_1	P_2	$P_{\frac{1}{2}}$	P_1	P_2

Treatments are three-course rotations with 11 district treatments. Plots under one treatment do not receive any fertilizer N or P. Plots under the other 10 treatments receive a basal application of N. One of the 10 treatments consists of the application of basal dose of N only. This treatment which serves as a control is applied to two plots in each block. Various symbols denote : $P_{\frac{1}{2}}$=11 Kg/ha., P_1=22 Kg/ha. and P_2=44 Kg/ha. of P_2O_5.

3 DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 2. (iv) (a) 16·5m × 3·0. (b) 15·8m × 2·4m. (v) and (vi) Nil.

4. GENERAL :

(i) Partial lodging on 23.1.1961. (ii) Slight attack of mealy bugs and jassids, gall fly and rats ; No control measures taken. (iii) Yield of grain. (iv) (a) 1954-contd. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

(i) 2509 Kg/ha. (ii) 267·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	1	(2+3)	4	5	6	7
Av. yield	2481	2509	2324	2324	2665	2739

Treatment	8	9	10	11	12
Av. yield	2462	2564	2739	2306	2481

Crop :- Paddy (*Kharif*). **Ref :- T.N. 60(M.A·E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type : 6(TCM), residual effect.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 10.6.1960/5.7.1960. (iv) (a) 3 diggings. (b) Broadcast in nursery. (c) 56 Kg/ha. (d) 10 cm. × 10 cm. ; bulk planting. (e) N.A. (v) 4483 Kg/ha. of G.L. (vi) ADT-3 ; 95 days. (vii) Irrigated. (viii) One weeding. (ix) and (x) N.A.

2 TREATMENTS :

Same as in Type VI(TCM)(Rabi) on page 53.

3 DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 2. (iv) (a) 16·5m. × 3·0m. (b) 15·8m. × 2·4m. (v) and (vi) Nil.

4 GENERAL :

(i) Partial and complete lodging in some of the plots. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1954-contd. (b) and (c) Nil. (v) and (vi) Nil. (vii) Damage to the crop was done by rats and parrots and due to the rain on 5.9.60, complete crop lodged.

5. RESULTS :

(i) 4852 Kg/ha. (ii) 171·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	1	(2+3)	4	5	6	7
Av. yield	4500	4860	5045	4897	4980	4713

Treatment	8	9	10	11	12
Av. yield	5137	4593	4805	4787	5045

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63 & 64(M.A.E).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object : –Type XI :—To study the effect of method of application of micronutrients on Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey alluvium. (iii) 19.7.63; 27.7.64, N.A. (iv) and (v) N.A. (vi) A.D.T.—3. (vii) Irrigated. (viii) and (ix) N.A. (x) 24.10.63; 7.10.64; N.A.

2. TREATMENTS :

All combinations of (1) and (2)+3 extra treatmants

(1) 6 sources of micronutrients : S_1=Manganese Sulphate, S_2=Zinc Sulphate, S_3=Copper Sulphate, S_4=Borax. S_5=Sodium Molybdate and $S_6=S_1+S_2+S_3+S_4+S_5$.

(2) 2 methods of application : M_1=Soil application and M_2=Foliar application.

Extra treatments : T_0=Control, T_1=35 Kg/ha. each of N, P_2O_5 and K_2O and T_2=Spartin at 395 Kg/ha.

T_1 is also applied to 12 plots receiving micronutrients and to T_2 plot optimum dose of each micronutrient for the two methods has been tried. T_1 and T_2 applied to soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) and (v) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—65. (b) N.A. (c) Nil. (v) Bhawanisagar. (vi) and (vii) Nil.

5. RESULTS :

1963

(i) 3827 Kg/ha. (ii) 473·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha. T_0=3695 Kg/ha., T_1=4205 Kg/ha. and T_2=3834 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	3612	3751	4056	3972	3751	3878	3837.
M_2	4050	3667	3750	3717	3872	3600	3776
Mean	3831	3709	3903	3845	3811	3739	3806

1964

(i) 2997 Kg/ha. (ii) 370·5 Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

T_0=3424, T_1=2861, T_2=2870 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	3226	2676	3250	3202	3114	2944	3069
M_2	2929	3057	2484	3193	2975	2746	2897
Mean	3078	2867	2867	3198	3044	2845	2983

Crop :- Paddy (*Kharif*). **Ref :- T.N. 64 & 65(M.A.E).**

Site :- M.A.E. Centre, Bhawanisagar. **Type :- 'M'.**

Object :—Type XI :—To study the effect of method of application of micronutrients on Paddy.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) 14.8.1964; N.A. (iv) and (v) N.A. (vi) T.K.M.—6 (120 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 21.11.1964; N.A.

2. TREATMENTS :

Same as in Expt. No. Type XI conducted at Aduthurai on page 55.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—1966. (b) N.A. (c) Nil. (v) (a) Aduthurai. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

1964

(i) 360 Kg/ha. (ii) 39·4 Kg/ha. (iii) T alone is highly significant. (iv) Av. yield of grain in Kg/ha.

$T_0=306$, $T_1=395$, $T_2=360$ Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	383	376	354	351	358	362	364
M_2	354	409	364	368	365	291	359
Mean	369	392	359	359	362	327	361

C.D. for T means=56·3 Kg/ha.

1965

(i) 1400 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of grain in Kg/ha.

$T_0=1130$, $T_1=1669$ and $T_2=1558$ Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	1507	1381	1500	1529	1381	1492	1465
M_2	1440	1300	1374	1352	1359	1027	1309
Mean	1474	1340	1437	1440	1370	1260	1387

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63, 64(M.A.E).**

Site :- M.A.E. Centre, Melasval. **Type :- 'M'.**

Object :—Type XI :—To study the effect of method of application of micronutrients on Paddy.

1. BASAL CONDITIONS :

(i) Nil. (ii) Sandy alluvium. (iii) N.A.; 18.4.1964. (iv) and (v) Nil. (vi) A.S.D.– 5; Co.—29. (vii) Irrigated. (viii) and (ix) N.A. (x) N.A.; 15.7.1964.

2. TREATMENTS :

Same as in Expt. No. XI conducted at Aduthurai on page 55.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—1964. (b) and (c) N.A. (v) (a) Bhawanisagar, Aouthurai. (b)Nil. (vi) and (vi) Nil.

5. RESULTS :

1963

(i) 3959 Kg/ha. (ii) 388·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

T_0=3773, T_1=4204, T_2=3891 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	3661	3737	3974	3655	4045	4163	3873
M_2	4122	4004	3778	4281	4050	4051	4048
Mean	3891	3871	3876	3968	4047	4107	3960

1964

(i) 2526 Kg/ha. (ii) 248·7 Kg/ha. (iii) T_6 vs. T is highly significant. (iv) Av. yield of grain in Kg/ha.

T_0=1926, T_1=2532, T_2=2622 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2658	2514	2568	2487	2577	2396	2533
M_2	2478	2568	2532	2930	4742	2353	2600
Mean	2568	2541	2550	2708	2659	2374	2567

C.D. for 'T_0 vs. T'=355·1 Kg/ha.

Crop - Paddy (*Kharif*). **Ref :- T.N. 63, 64, 65(M.A.E).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type XII :—To study the effect of foliar application of fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) N.A. (ii) Clay loam. (iii) 19.7.63; 29.7.64; N.A. (iv) and (v) N.A. (vi) ADT—36. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.9.63; 9.10.64.

2. TREATMENTS :

Main-plot treatments :

4 fertilizer treatments : F_1=44·8 Kg/ha. of N as A/S, F_2=22·4 Kg/ha. of P_2O_5 as Super, F_3=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5 and F_4=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5 +22·4 Kg/ha. of K_2O.

Sub-plot treatments :

All combinations of (1) and (2)+2 extra treatments

(1) 3 methods of application : M_1=Soil application, M_2=Foliar application and M_3=Soil application and foliar application.

(2) 2 levels of application : L_1=½ dose and L_2=Full dose.

C_1=Water spray and C_2=Absolute control.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963–1965. (b) N.A. (c) Nil. (v) Melaseval and Karaiyiruppu. (vi) and (vii) Nil.

5. RESULTS :

(i) 2493 Kg/ha. (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain Kg/ha.

C_1=2419 and C_2=2419 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	2468	2385	2543	2600	2550	2414	2476
F_2	2500	2573	2574	2450	2619	2417	2473
F_3	2560	2706	2465	2490	2580	2647	2569
F_4	2533	2728	2430	2582	2551	2078	2533
Mean	2515	2598	2428	2531	2575	2464	2518

Crop :- Paddy (*Rabi*). **Ref :- T.N. 63, 64, and 65(M.A.E.).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'M'.**

Object :—Type XII : To study the effect of foliar application of fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 11.10 63 ; 23.10.64 ; N.A. (iv) and (v) N A. (vi) Co.-25. (vii) Irrigated. (viii) and (ix) N.A. (x) 2.2.64 ; 28.2.65 ; N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type XII 63, 64, 65 (MAE) Condcuted at Aduthurai (Kharif) on page 57.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-1965. (b) N.A. (c) Results of combined analysis are presented under 5. Results. (v) Melaseval, Karaiyiruppu. (vi) and (vii) Nil.

5. RESULTS :

(i) 3788 Kg/ha. (ii) (a) and (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

C_1=3497 and C_2=3739 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	3887	3719	3959	3851	3805	4146	3894
F_2	3812	3753	3441	4018	3824	3731	3762
F_3	3610	4004	3598	3960	3701	3831	3801
F_4	3770	3977	3686	3979	4251	3866	3922
Mean	3770	3863	3671	3952	3895	3919	3845

Crop :- Paddy (*Rabi*). **Ref :- T.N. 65(MAE).**

Site :- M.A.E. Centre, Karaiyiruppu. **Type :- 'M'.**

Object :—Type XII : To study the effect of foliar application of fertilizers on the yield of Paddy.

1 BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Medium black. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : 3. DESIGN :

Same as in Type XII 63, 64. 65 (MAE) conducted at Aduthurai (Kharif) on page .

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-66. (b) N.A. (v) Melaseval, Aduthurai. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 3454 Kg/ha. (ii) (a) N.A. (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

C_1=3471 and C_2= 3353 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	3567	3559	3419	3535	3732	3740	3592
F_2	2996	3282	3136	3272	3472	3235	3232
F_3	3630	3180	3638	3835	3549	3466	3549
F_4	3872	3468	2588	3807	3622	3630	3498
Mean	3516	3372	3195	3612	3594	3518	3468

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63 and 64 (MAE).**

Site :- M.A.E. Centre, Melaseval. **Type :- 'M'.**

Object :— Type XII : To study the effect of foliar application of fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. ; 26.4.64. (iv) and (v) N.A. (vi) Co.-29, Co.-296. (vii) Irrigated. (viii) and (ix) N.A. ; (x) 22.7.64.

2. TREATMENTS : 3. DESIGN :

Same as in Type XII 63. 64, 65 (MAE) conducted at Aduthurai (Kharif) on page .

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-1964. (b) N.A. (c) Results of combined analysis are presented under 5. Results. (v) Aduthurai. (vi) and (vii) Nil.

5. RESULTS :

(i) 2068 Kg/ha. (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_1=1963 and C_2=1936 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	1982	2176	1918	2300	1904	2228	2085
F_2	2068	2018	2144	2151	2104	1980	2077
F_3	1749	2130	2022	1986	1988	2345	2036
F_4	2160	2297	2009	2250	2266	2386	2228
Mean	1990	2155	2024	2172	2065	2235	2107

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63(MAE).**

Site :- M.A.E. Centre, Melaseval. **Type :- 'M'.**

Object :— Type XII : To study the effect of foliar application of fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (iii) Sandy loam. (iii) 10.12.63. (iv) and (v) N.A. (vi) A.S.D. 5 (135 days). (vii) Irrigated. (viii) and (ix) N.A. (x) 31.3.64.

2. TREATMENTS : and 3. DESIGN :

Same as in Type XII 63, 64, 65 (MAE) conducted at Aduthurai on page .

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963 only. (b) and (c) N.A. (v) (a) Aduthurai, Karaiyiruppu. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 3443 Kg/ha. (ii) (a) 867·7 Kg/ha. (b) 279·0 Kg/ha. (iii) Main effect of L is highly significant. Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

C_1=3253 Kg/ha. and C_2=3278 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	3466	3815	3384	3619	3578	3732	3599
F_2	3040	3588	3194	3153	3153	3308	3239
F_3	3655	3768	3502	3586	3194	3619	3554
F_4	3578	3881	3389	3538	3578	3737	3617
Mean	3435	3763	3367	3474	3376	3599	3502

C.D. for L marginal means=113·9 Kg/ha.
C.D. for M marginal means=139·5 Kg/ha.

Crop :- Paddy (*Kuruvai*).

Ref :- T.N. 62, 63, 64, 65 (S.F.T.) for Pondicherry; 63,64,65(S.F.T.) for Tanjavar and Trichy ; 62, 65 (S.F.T.) for Chingleput ; 62(S.F.T.) for Coimbatore ; 62, 64, for Salem ; 65 (S.F.T.) for S. Arcot and N. Arcot ; 63 (S.F.T.) for Tirunelveli and 64, 65(S.F.T.) for Madurai.

Site :-(District): Pondicherry,Madurai, Thanjavar, Trichy, Chingleput, Coimbatore, Salem, S. Arcot, N. Arcot and Tirunelveli.

Type :- 'M'.

Object :—To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients (Type : A_1).

1. BASAL CONDITIONS :

(i) N.A. (ii) Crystal alluvium ; Red sandy for Madurai and Tanjavar ; N.A. ; coastal aluvial ; Red and black ; Red loamy ; Deltaic alluvial ; Red sandy for N. Arcot and Tirunelveli. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure)
N_1 =35 Kg/ha. of N
N_2 =70 Kg/ha. of N
P_1 =35 Kg/ha. of P_3O_5
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_2P_1 =70 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_1$ =70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha of K_2O
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50 - 100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type—C trials three villages are randomly selected in each block.

GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 for Pondicherry, Chingleput and Salem (1963, 1964-N.A. for Chingleput and 1963 N.A. for Salem) ; 1963 to 1966 Madurai, Tanjavar and Trichy ; 1962 only for Coimbatore ; 1963 only for Tirunelveli and 1965 only for S. Arcot and N. Arcot. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Pondicherry
62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	413	704	163	732	896	1036	1499	94·5

Control yield=2763 Kg/ha. ; No. of trials=18.

63 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	510	907	617	1013	1314	1474	1999	118·3

Control yield=2026 Kg/ha. ; No. of trials=7.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	840	1080	720	1210	1490	1650	2120	81·0

Control yield=2860 Kg/ha. ; No. of trials=35.

65 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	394	706	536	942	1103	1345	1746	80·4

Control yield=2547 Kg/ha. ; No. of trials=14.

Trichy

63 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	349	482	258	422	473	569	728	173·6

Control yield=2473 Kg/ha. ; No. of trials=4.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	433	606	355	604	772	734	1070	103·2

Control yield=2884 Kg/ha. ; No. of trials=5.

65 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in K/ha.	219	504	312	424	582	938	1106	259·7

Control yield=1991 Kg/ha. ; No. of trials=12.

Chingleput

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain inKg/ha.	164	181	98	181	263	395	461	59·8

Control yield=2767 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	266	350	233	350	408	453	676	73·5

Control yield=2616 Kg/ha. ; No. of trials=6.

Coimbatore

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S. E.
Av. response of grain in Kg/ha.	7	−28	7	15	−81	135	164	184·4

Control yield=3354 Kg/ha. ; No of trials=3.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	284	399	384	350	532	780	863	199·3

Control yield=2902 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	370	442	351	428	763	862	697	266·3

Control yield=3135 Kg/ha. ; No. trials=5.

S. Arcot

65(.SF.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	596	280	480	733	646	336	363	256·8

Control yield=2869 Kg/ha. ; No.of trials=3.

N. Arcot

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	116	238	208	393	298	612	520	110·3

Control yield=2960 Kg/ha. ; No. of trials=6.

Thanjavur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	114	99	218	239	292	429	522	62·7

Control yield=2705 Kg/ha. ; No. of trials=27.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	202	449	257	480	475	650	639	62·0

Control yield=2495 Kg/ha, ; No. of trials=11.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	217	428	137	453	605	955	885	82·5

Control yield=2802 Kg/ha. ; No. of trials=17.

Madurai

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	563	533	98	415	622	800	770	175·5

Control yield=2006 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	170	636	180	456	806	653	610	204·3

Control yield=2976 Kg/ha. ; No. of trials=3.

Tirunelveli

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E,
Av. response of grain in Kg/ha.	815	457	488	840	1396	883	1328	253·7

Control yield=3700 Kg/ha. ; No. trials=6.

Crop :- Paddy (*Thaladi*).

Ref :- T.N. 62, 63, 64, 65(S.F.T.) for Trichy, Chingleput, Tanjavur and Tirunilveli ; 62, 64 (S.F.T.) for coimbatore ; 63, 65 (S.F.T.) for Pondicherry and N. Acot ; 62, 65 (S.F.T.) for S. Arcot ; 63, 64 (S.F.T.) for Madurai ; 62(S.F.T.) for Salem.

Site :- Trichy, Chingleput, Tanjavur, Tirunelveli, Coimbatore, Pondicherry, N. Arcot, S. Arcot, Madurai, Salem and R. Puram.

Type :- 'M'

Object :—To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients (Type : A_1).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. ; Coastal alluvium ; Red sandy for Thanjavur and Tirunelveli ; Red and black ; crystal alluvium ; Red sandy ; Deltaic alluvium ; Red sandy ; Red loamy ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1 (Kuruvai) on page 61.

4. GENERAL :

(i) to (iii) N.A. (iv) 1962 to 1965 for Trichy, Chingleput, Thanjavur. Tirunelveli, Coimbatore and S. Arcot (1963 N.A. for Coimbatore and 1963 and 1964 N.A. for S. Arcot) ; 1963 to 1965 (1964 N.A.) for Pondicherry and N. Arcot ; 1962 only for Salem ; 1963 to 1964 for Madurai ; 1965 only for R. Puram, (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Trichy

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grnin in Kg/ha.	328	808	652	689	939	947	1111	129·5

Control yield=1962 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	180	496	174	354	608	732	949	78·1

Control yield=3184 Kg/ha. ; No. of trials=21.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	304	520	338	326	554	501	848	121·8

Control yield=2282 Kg/ha. ; No. of trials=21.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	71	156	160	155	275	432	524	152·3

Control yield=3136 Kg/ha. ; No. of trials=9.

Chingleput

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	153	104	133	255	305	342	402	51·5

Control yield=2250 Kg/ha. ; No. of trials=7.

63 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	444	502	527	625	741	724	906	231·9

Control yield=2762 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	237	286	247	261	597	543	751	200·5

Control yield=2762 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	217	347	115	325	412	507	628	34·8

Control yield=2137 Kg/ha. ; No. of trials=14.

Thanjavur

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	298	409	503	466	511	806	725	127·9

Control yield=2044 Kg/ha. ; No. of trials=2.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	104	164	313	358	179	403	538	70·8

Control yield=1599 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	269	496	501	792	897	1156	1412	95·8

Control yield=2699 Kg/ha. ; No. of trials=14.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	197	358	133	576	606	937	944	248·0

Control yield=2334 Kg/ha. ; No. of trials=7.

Tirunelveli

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	337	628	414	829	980	1191	1556	77·2

Control yield=2679 Kg/ha. ; No. of trials=10.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	341	569	340	742	984	1303	1586	67·1

Control yield=3452 Kg/ha. ; No. of trials=16.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	251	420	296	584	700	885	1095	87·7

Control yield=2042 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	360	540	540	740	830	940	1100	67·8

Control yield=3120 Kg/ha. ; No. of trials=10.

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	324	219	208	365	262	427	708	116·4

Control yield=2402 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	33	89	114	236	173	233	738	164·2

Control yield=1868 Kg/ha. ; No. of trials=2.

Pondicherry

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	527	922	395	988	1054	1317	1515	180·9

Control yield=1515 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	503	620	508	762	804	1162	1641	171·4

Control yield=1949 Kg/ha. ; No. of trials=5.

N. Arcot

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	309	811	287	371	691	964	1051	394·2

Control yield=2321 Kg/ha. ; No. of trials=10.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	170	254	206	217	216	340	499	46·0

Control yield=2502 Kg/ha. ; No. trials=8.

S. Arcot

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	301	114	135	1043	843	707	1086	458·9

Control yield=2012 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	138	322	147	372	477	288	595	90·2

Control yield=1944 Kg/ha. ; No. of trials=8.

Madurai

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	353	590	355	403	792	760	1090	136·6

Control yield=3258 Kg/ha. ; No. of trials=12.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	248	499	130	513	599	756	785	152·3

Control yield=3235 Kg/ha. ; No. of trials=18.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	352	656	343	423	559	738	883	85·3

Control yield=2950 Kg/ha. ; No. of trials=11.

Crop :- Paddy (*Samba*).

Ref :- T.N. 62, 63, 65 (S.F.T.) for Pondicherry and Trichy; 63,64,65 S.F.T.) for Salem; 63,64 (S.F.T.) for Coimbatore ; 63, 64 (S.F.T.) for Chingleput ; 62, 63, 64, 65(S.F.T.) for S. Arcot ; 62, 64, 65(S.F.T.) for Thanjavur ; 64, 65(S.F.T.) for Madurai & Tirunelveli.

Site :- Pondicherry, Trichy, Coimbatore, Chingleput, Salem, S. Arcot, Thanjavur, Madurai, and Tirunelveli.

Type :- 'M'.

Object :—To study the response curves of important cereal, cash and oilseeds crops to nitrogen applied singly and in combination with other nutrients (Type : A_1).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Crystal alluvium ; N.A. ; Red and black ; Coastal alluvium ; Red loamy ; Deltaic alluvium ; Red sandy for Thanjavur, Madurai and Tirunelveli. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_1(*kuruvai*) on page 64.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1966 for Pondicherry, Trichy, Coimbatore, S. Arcot and Thanjavur [1964-N.A. for Pondicherry, Trichy and Coimbatore : 1963-N.A. for Thanjavur]; 1963 to 1965 for Chingleput and Salem ; 1964-1965 for Madurai and Tirunelveli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Pondicherry

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	604	833	493	944	1195	1418	1744	60·2

Control yield=2050 Kg/ha. ; No. of trials=13.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	514	980	479	868	1117	1379	1735	99·8

Control yield=2625 Kg/ha. ; No. of trials=16.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	706	873	667	917	1182	1376	1711	92·6

Control yield=2109 Kg/ha. ; No. of trials=14.

Trichy

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	142	197	155	118	270	327	370	56 5

Control yield=2615 Kg/ha. ; No. of trials=12.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	14	192	91	357	367	427	742	78·7

Control yield=2563 Kg/ha. ; No. of trials=17.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	474	519	29	692	421	849	846	157·5

Control yield=3020 Kg/ha. ; No. of trials=8.

Chingleput

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	301	420	371	425	480	558	562	77·7

Control yield=2450 Kg/ha. ; No. of trials=17.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	953	1167	—281	0	—110	981	—618	825·2

Control yield=3818 Kg/ha. ; No. of trials=7.

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	—214	10	159	—177	59	150	279	149·4

Control yield=3687 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	114	138	69	319	201	409	562	52·2

Control yield=2696 Kg/ha. ; No. of trials=11.

Salem

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	455	473	326	616	672	772	1085	125·4

Control yield=2638 Kg/ha. ; No. of trials=11.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_1P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	324	292	306	457	512	688	776	80·8

Control yield=3467 Kg/ha. ; No. of trials=16.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	383	491	304	425	620	766	641	112 9

Control yield=2249 Kg/ha. ; No. of trials=10.

S. Arcot

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	255	444	405	558	588	782	1211	257·5

Control yield=2544 Kg/ha. ; No. of trials=8.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	414	554	296	543	648	733	1084	66·0

Control yield=2050 Kg/ha. ; No. of trials=20.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	351	239	—117	216	692	395	731	239·7

Control yield=2961 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	210	106	—14	723	140	407	675	331·9

Control yield=3911 Kg/ha. ; No. of trials=3.

Thanjavur

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	146	309	314	340	431	531	657	38·8

Control yield=2587 Kg/ha. ; No. of trials=25.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	175	375	339	536	647	908	924	93·2

Control yield=2565 Kg/ha. ; No. of trials=13.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	365	880	490	980	1245	1255	1166	129·3

Control yield=2834 Kg/ha. ; No. of trials=10.

Tirunelveli

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	420	543	518	617	667	864	1034	115·5

Control yield=4151 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	350	537	450	912	950	1187	1400	92·4

Control yield=3275 Kg/ha. ; No. of trials=3.

Madurai

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	296	296	345	49	247	593	840	350·4

Control yield=2767 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	436	807	256	630	936	1033	1090	196·2

Control yield=3496 Kg/ha. ; No. of trials=8.

Crop :- Paddy (*Kuruvai*).

Site :- (District) : Thanjavur, Trichy, Tirunelveli, Madurai, Chingleput, S. Acort, Coimbatore, Salem and N. Acort.

Ref:- T.N. 63,64,65 (SFT) for Thanjavur and Trichy; 63, 64 (SFT) for Tirunelveli; 64(SFT) for Madurai; 62, 65(SFT) for Chingleput ; 62(SFT) for Coimbatore ; 62, 64 (SFT) for Salem; 65(SFT) for N. Arcot and S. Arcot.

Type :- 'M'.

Object :— To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients (Type : A_2).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loamy for Salem, Coastal alluvium for Chingleput, Red and black for Coimbatore, Deltaic alluvium for S. Arcot and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=35 Kg/ha. of N.
P_1=35 Kg/ha. of P_2O_5.
P_2=70 Kg/ha of P_2O_5.
N_1P_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2=35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (Kuruvai) on page 64.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1964 for Tirunelveli ; 1963 to 1966 for Madurai ; 1962 to 1965 [1963 and 1964 N.A.] for Chingleput ; 1965 to 1966 for N. Arcot ; 1962 to 1966 [1963 to 1965 N.A. for Coimbatore, 1963 N.A. for Salem and 1963 and 1964 N.A. for S. Arcot] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	225	166	307	474	557	761	928	139·2

Control yield=2645 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	20	337	823	679	687	741	897	352·1

Control yield=2763 Kg/ha. ; No. of trials=5.

Chingleput

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	131	131	131	164	230	296	312	52·7

Control yield=2668 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	387	281	352	512	637	754	908	68·5

Control yield=2424 Kg/ha. ; No. of trials=9.

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	65	—231	—37	7	—119	305	417	155·7

Control yield=3460 Kg/ha. ; No. of trials=3.

S. Arcot

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	166	—50	616	633	233	283	—30	471·6

Control yield=3299 Kg/ha. ; No. of trials=3.

Thanjavur

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	213	314	443	364	449	565	769	82·9

Control yield=2523 Kg/ha. ; No. of trials=26

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	201	250	444	445	619	716	790	70·0

Control yield=2527 Kg/ha. ; No. of trials=8.

65(S F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	236	192	484	468	665	860	933	90·6

Control yield=2704 Kg/ha. ; No. of trials=17.

Trichy

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	276	101	242	522	485	721	781	121·8

Control yield=2180 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	412	457	479	374	339	510	624	211·9

Control yield=3008 Kg/ha. ; No. of trials=9.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	310	275	312	375	389	500	505	88·2

Control yield=2043 Kg/ha. ; No. of trials=9.

Tirunelveli

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	698	339	562	926	1081	1352	1680	89·2

Control yield=3570 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	418	415	590	853	1022	1203	1450	87·1

Control yield=3199 Kg/ha. ; No. of trials=8.

Madurai
64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	336	296	316	434	642	681	652	58·7

Control yield=2253 Kg/ha ; No. of trials=2

N. Arcot
65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	100	97	226	350	401	631	722	50·3

Control yield=2731 Kg/ha. : No. of trials=6

Crop :- Paddy (*Thaladi*).

Ref :- T.N. 62, 63, 64, 65 (S.F.T.) for Chingleput, Thanjavur and Trichy; 63, 64(S.F.T.) for Madurai; 62, 63, 65(S.F.T.) for Tirunelveli ; 62(S.F.T.) for Coimbatore ; 62, 65(S.F.T.) for S. Arcot ; 63, 65(S.F.T.) for N. Arcot ; 62(S.F.T.) for Salem.

Site :- (District) : Chingleput, Thanjavur, Trichy, Madurai, Tirunelveli, Coimbatore, S. Arcot, N. Arcot and Salem.

Type :- 'M'.

Object :—To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients (Type : A_2).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loamy for Salem, Crystal alluvium for Pondicherry, Coastal alluvium for Chingleput, Red and black for Coimbatore, Deltaic alluvium for S. Arcot and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_2 (Kuruvai) on page 71.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 [1964 N.A.] for N. Arcot ; 1962 to 1966 [1965 N.A. for Chingleput ; 1963 and 1964 N.A. for Coimbatore, 1963 to 1965 N.A. for Salem, 1963 and 1964 N.A. for S. Arcot, 1965 N.A. for Madurai, 1964 N.A. for Tirunelveli] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5 RESULTS :

Salem
62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	383	275	413	428	590	782	754	151·5

Control yield=3269 Kg/ha.; No. of trials=13.

Chingleput

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	40	176	214	260	316	373	450	59·8

Control yield=2356 Kg/ha. ; No. of trials=11.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	242	273	327	403	456	518	726	185·8

Control yield=2630 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	605	704	568	605	803	729	1025	227·8

Control yield=2384 Kg/ha.; No. of trials=2.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	247	376	399	472	607	583	719	84·6

Control yield=2054 Kg/ha.; No. of trials=9.

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	315	379	425	388	437	503	712	63·2

Control yield=2356 Kg/ha. ; No. of trials=5.

S. Arcot

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	298	257	269	524	496	717	1002	267·1

Control yield=2793 Kg/ha. ; No. of trials=6.

65 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	197	—221	—394	84	—21	129	214	146·1

Control yield=2385 Kg/ha. ; No. of trials=8.

N. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	380	483	648	733	960	1118	1363	81·1

Control yield=1937 Kg/ha. ; No. of trials=10.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	111	130	149	226	237	380	550	89·5

Control yield=2559 Kg/ha. ; No. of trials=8.

Thanjavur

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	485	116	375	441	714	813	870	109·7

Control yield=1593 Kg/ha.; No. of trials=3.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	22	145	302	100	246	482	526	55·7

Control yield=1491 Kg/ha. ; No. trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	205	362	408	569	710	903	1165	73·8

Control yield=2730 Kg/ha. ; No. of trials=12.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	291	383	491	549	977	781	1115	122·9

Control yield=2263 Kg/ha. ; No. of trials=6.

Trichy

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	187	179	285	602	719	847	930	130·4

Control yield=1953 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	252	118	171	435	486	536	926	138·2

Control yield=3058 Kg/ha. ; No. of trials=19.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	279	—40	218	445	440	530	875	181·4

Control yield=2658 Kg/ha. ; No. of trials=10.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	294	170	285	360	214	269	385	92·5

Control yield=3178 Kg/ha. ; No. of trials=8.

Tirunelveli

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	480	587	601	801	936	1205	1510	80·3

Control yield=2536 Kg/ha. ; No. of trials=10.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	605	228	395	858	957	1210	1513	67·4

Control yield=4324 Kg/ha.; No. of trials=8.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_2	N_2P_1	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	380	530	720	900	940	1090	1260	68·5

Control yield=3190 Kg/ha. ; No. of trials=10.

Madurai

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	269	73	167	640	387	628	724	200·3

Control yield=2748 Kg/ha. ; No. of trials=8.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	299	40	164	513	445	520	765	161·5

Control yield=3281 Kg/ha. ; No. of trials=20.

Crop :- Paddy (*Samba*).

Ref :- T.N. 62,63, 64(S.F.T.) for Chingleput and Coimbatore; 62,64,65(S.F.T.) for Thanjavur; 62,65 (S.F.T.) for Madurai; 63,64,65 (S.F.T.) for Salem; 62, 63, 64, 65 (S.F.T.) for S. Arcot and Trichy and 65(S.F.T.)for Tirunelveli.

Site :- (District): Chingleput, Thanjavur, Madurai, Tirunelveli, Coimbatore, Salem, S. Arcot and Trichy.

Type :- 'M'.

Object :— To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients (Type A_2).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loamy for Salem; Coastal alluvium for Chingleput; Red and black for Coimbatore; Detaic alluvium for S. Arcot ; Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_2 (Kuruvai) on page 71.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 [1063 and 1964 N.A.] for Madurai and Tirunelveli ; 1962 to 1966 [1965 N.A. for Chingleput and 1963 N.A. for Thanjavur] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	456	227	386	636	624	724	720	190·1

Control yield=2517 Kg/ha. ; No. of trials=11.

64 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	403	154	287	357	511	658	668	140·4

Control yield=3560 Kg/ha. ; No. of trials=15.

65 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	395	262	400	504	445	662	712	87·6

Control yield=2533 Kg/ha. ; No. of trials=10.

Chingleput

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	267	257	234	210	268	381	610	22·1

Control yield=3509 Kg/ha. ; No. of trials=3.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	390	427	405	455	552	692	808	73·1

Control yield=2413 Kg/ha. ; No. of trials=15.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	306	276	557	591	558	422	829	64·5

Control yield=2727 Kg/ha. ; No. of trials=6.

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	240	—29	—35	156	246	325	502	88·2

Control yield=3287 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	103	94	142	145	186	266	571	38·5

Control yield=3014 Kg/ha. ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	540	255	425	567	641	399	1273	227·8

Control yield=2540 Kg/ha. ; No. of trials=3.

S. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	350	357	548	569	901	789	1015	191·6

Control yield=2953 Kg/ha. ; No. of trials=9.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	205	272	327	484	500	517	725	69·1

Control yield=2140 Kg/ha. ; No. of trials=8.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	539	224	309	727	636	752	953	114·8

Control yield=2616 Kg/ha. ; N0. of trials=5.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	371	364	734	318	746	705	660	682·3

Control yield=4856 Kg/ha. ; No. of of trials=3.

Thanjavur

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	135	312	381	421	479	601	704	34·3

Control yield=2269 Kg/ha.: No. of trials=28.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	126	407	533	678	784	[illegible]73	1201	67·9

Control yield=2381 Kg/ha. ; No. of trials=17.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	226	369	673	883	1054	1327	1372	96·5

Control yield=2534 Kg/ha. ; No. of trials=10.

Trichy

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	139	183	100	312	275	448	382	79·8

Control yield=1976 Kg/ha. ; No. of trials=12.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	308	221	391	422	524	669	901	90·8

Control yield=2583 Kg/ha. ; No. of trials=17.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	215	446	334	667	392	818	749	171·8

Control yield=2814 Kg/ha. ; No. of trials=10.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	129	170	261	183	313	353	546	107·7

Control yield=3686 Kg/ha. ; No. of trials=11.

Tirunelveli

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	437	312	537	812	850	987	1300	133·9

Control yield=3387 Kg/ha. ; No. of trials=3.

Madurai

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	359	241	178	369	508	936	683	113·2

Control yield=1927 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	152	—42	210	230	341	197	547	171·4

Control yield=3669 Kg/ha. ; No. of trials=9.

Crop :- Paddy (*Thaladi*).

Ref :- T.N. 63, 65(S.F.T.) for N. Arcot; 62, 65(S.F.T.) for Coimbatore; 62 (S.F.T.) for Salem; 62, 65(S.F.T.) for S. Arcot; 63 (S.F.T.) for Madurai; 62, 63, 64, 65(S.F.T.) for Chingleput, Thanjavur and Trichy; 62, 63, 65(S.F.T.) for Tirunelveli.

Site :- (District) : N. Arcot, Coimbatore, Salem, S. Arcot, Madurai, Chingleput, Thanjavur, Trichy and Tirunelveli.

Type :- 'M'.

Object :—(Type : A_3). To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITINOS :

(i) (a) to (c) N.A. (ii) Coastal alluvium for Chingleput ; Red and black for Coimbatore; Deltaic alluvium for S. Arcot; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments

O =Control (no manure) :

N_1 =35 Kg/ha. of N.

K_1 =35 Kg/ha. of K_2O.

K_2 =70 Kg/ha. of K_2O.

N_1K_1 =35 Kg/ha. of N+35 Kg/ha. of K_2O.

N_1K_2 =35 Kg/ha. of N+70 Kg/ha. of K_2O.

N_2K_2 =70 Kg/ha. of N+70 Kg/ha. of K_2O.

$N_1P_1K_1$ =35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (Kuruvai) on page 68.

4. GENERAL :

(i) to (iii) N A. (iv) (a) 1963 to 1965 [1964 N.A.] for N. Arcot; 1962 to 1965 [1963 and 1964 N.A.] for Coimbatore; 1063 to 1966 [1965 N.A.] for Madurai; 1962 to 1966 [1963 to 1965 N.A. for Salem, 1964 N.A. for S. Arcot] for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Chingleput

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	142	167	185	228	349	395	424	43·3

Control yield=2235 Kg/ha.; No. of trials=13.

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	146	241	228	307	280	402	511	208·5

Control yield=2746 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	543	28	395	415	774	856	695	165·4

Control yield=2627 Kg/ha.; No. of trials=4.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	289	244	251	349	422	324	457	77·4

Control yield=2400 Kg/ha.; No. of trials=7.

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	294	190	237	361	405	344	626	85·5

Control yield=2356 Kg/ha; No.of trials=5.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	110	8	15	311	273	490	510	253·2

Control yield=4290 Kg/ha.; No. of trials=2.

S. Arcot

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	480	185	316	947	847	948	1217	338·6

Control yield=1911 Kg/ha.; No. of trials=4.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	655	—116	—310	443	—57	170	1236	—

Control yield=2420 Kg/ha.; No. of trials=2.

Salem

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	599	175	323	545	617	729	948	108·9

Control yield=3057 Kg/ha.; No. of trials=12.

N. Arcot

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	257	231	235	572	975	912	1056	176·3

Control yield=1851 Kg/ha.; No. of trials=10.

65(S.T.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	110	155	150	243	200	364	358	33·3

Control yield=2400 Kg/ha.; No. of trials=7.

Thanjavur

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	280	359	439	641	697	834	879	76·5

Control yield=1997 Kg/ha.; No. of trials=3,

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	148	104	119	193	330	492	552	143·8

Control yield=1300 Kg/ha.; No. of trials=3.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	229	187	315	530	645	847	971	51·6

Control yield=2536 Kg/ha.; No. of trials=12.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	299	340	336	380	659	898	1020	137·1

Control yield=1872 Kg/ha.; No. of trials=6.

Trichy

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	387	166	243	355	547	716	701	98·7

Control yield=2073 Kg/h.; No. of trials=8.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	330	182	289	215	479	621	883	147·2

Control yield=3024 Kg/ha.; No. of trials=16.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	523	322	506	713	700	1118	1031	121·2

Control yield=2514 Kg/ha.; No. of trials=11.

65(S.F T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	201	40	53	271	149	344	503	111·3

Control yield=3020 Kg/ha.; No. of trials=9.

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	757	560	461	702	1021	1142	1625	158·1

Control yield=2449 Kg/ha.; No. of trials=9.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	549	191	345	766	889	1068	1334	77·6

Control yield=3687 Kg/ha.; No. of trials=8.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	270	340	460	650	670	860	890	72·3

Control yield=3140 Kg/ha.; No. of trials=10.

Madurai

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	385	68	294	545	491	629	681	126·0

Control yield=3217 Kg/ha.; No. of trials=16.

Crop :- Paddy (*Samba*).

Ref :- T.N. 62, 64, 65(S.F.T.) for Thanjavur and Tirunelveli ; 63, 64, (S.F.T.) for Chingleput ; 63, 64, 65(S.F.T.) for Salem ; 64(S.F.T.) for R. Puram; 65(S.F.T.) for Madurai ; 62, 63, 64 (S.F.T.) for Coimbatore and 62, 63,64, 65(S.F.T.) for S. Arcot and Trichy.

Site :-(District) : Thanjavur, Tirunelveli, Chingleput, Salem, R. Puram, Madurai, Trichy, Coimbatore and S. Arcot.

Type :- 'M'.

Object :—To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients (Type : A_3).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Coastal alluvium for Chingleput, Red and black for Coimbatore, Deltaic alluvium for S. Arcot, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_3 (Thaladi) on page 81.

4. GENERAL :

(i) to (iii) N.A. (iv) 1962 to 1965 (1953 N.A. for Tirunelveli) for Trichy and Tirunelveli ; 1963 to 1966 1965 N.A. for Chingleput) for Salem and Chingleput ; 1965 to 1966 for Madurai ; 1964 only for R. Puram ; 1962 to 1966 (1963 N.A. for Thanjavur) for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Chingleput

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—5	—52	185	266	353	210	432	75·6

Control yield=2666 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	232	195	195	128	277	82	237	50·9

Control yield=2863 Kg/ha. ; No. of trials=3.

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	55	174	404	626	619	530	492	292·0

Control yield=3289 Kg/ha. ; No. of trials=3.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	142	83	114	223	236	290	547	35·9

Control yield=2963 Kg/ha. ; No. of trials=10.

64(SF.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	215	139	97	318	302	367	661	167·8

Control yield=1988 Kg/ha. ; No. of trials=2.

S. Arcot

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	482	352	167	457	187	77	723	231·9

Control yield=2838 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	197	—24	—20	283	221	230	361	57·2

Control yield=2030 Kg/ha. ; No. of trials=18.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	622	143	84	315	388	451	592	167·1

Control yield=2759 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	401	485	–40	364	388	151	731	372·4

Control yield=3595 Kg/ha. ; No. of trials=3.

Thanjavur

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	116	274	358	371	408	599	671	92·5

Control yield=2204 Kg/ha. ; No. of trials=22.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	132	295	402	322	443	529	678	82·6

Control yield=2470 Kg/ha. No. of trials=15.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	245	65	232	556	535	702	956	91·5

Control yield=2295 Kg/ha. ; No. of trials=10.

Salem

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	499	20	232	304	492	660	789	68·1

Control yield=2318 Kg/ha. No. of trials=10.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	479	224	232	471	425	657	761	109·4

Control yield=3180 Kg/ha. ; No. of trials=16.

65(S.FT..)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—508	—716	—83	294	220	616	161	122·2

Control yield=3177 Kg/ha. ; No. of trials=10.

Trichy

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	115	94	36	190	254	384	420	56·7

Control yield=2057 Kg/ha. ; No. of trials=9.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	187	92	216	372	509	579	716	65·4

Control yield=2602 Kg/ha. ; No. of trials=15.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	362	216	391	717	564	1056	1102	117·0

Control yield=2589 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	101	—57	34	89	116	223	121	97·6

Control yield=3357 Kg/h. ; No. of trials=8.

R. Puram

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	97	5	26	166	143	216	203	48·7

Control yield=1148 Kg/ha. ; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E
Av. response of grain in Kg/ha.	1449	593	658	1054	1054	1449	1976	179·2

Control yield=3690 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	400	252	429	607	737	859	1186	43·0

Control yield=2673 Ka/hg. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	500	312	612	737	762	850	1175	46·2

Control yield=3350 Kg/ha. ; No. of trials=3.

Madurai

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	531	286	290	718	500	664	1015	230·1

Control yield=3474 Kg/ha. ; No. of trials=11.

Crop :- Paddy (*Kuruvai*).

Ref. :- T. N. 63, 64, 65 (S.F.T.) for Trichy, ; 63 (S.F.T.) for Tirunelveli; 62,65(S.F.T.) for Chingleput ; 62(S.F.T.) for Coimbatore; 62, 64, 65(S.F.T.) for Salem ; 62, 63, 64, 65(S.F.T.) for Thanjavur and 65(S.F.T.) for S. Arcot, N.Arcot and Madurai.

Site :- (District) : Trichy, Tirunelveli, Madurai, Chingleput, Coimbatore, Salem, Thanjavur, N. Arcot and S. Arcot.

Type :- 'M'

Object :—To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients (Type : A_3).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Coastal alluvium for Chingleput, Red and black for Coimbatore, Deltaic alluvium for S. Arcot, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_3 (Thaladi) on page .

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 (1964 N.A. for Madurai) for Trichy and Madurai ; 1963 only for Tirunelveli ; 1962 to 1965 for Thanjavur 1965 to 1966 for N. Arcot and S. Arcot ; 1962 to 1966 (1963 N.A. for Salem, 1963 and 1964 N.A. for Chingleput and 1963 to 1965 N.A. for Coimbatore) for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Chingleput

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	214	49	49	280	296	395	296	68·3

Control yield=2 059 Kg/ha. ; No. of trials=3.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	350	151	168	320	386	510	625	69·6

Control yield=2478 Kg/ha. ; No. of trials=8.

Coimbatore

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	142	—165	—142	—97	98	28	36	129·3

Control yield=2765 Kg/ha. ; No. of trials=3.

S. Arcot

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	481	—29	159	322	467	557	759	145·3

Control yield=2505 Kg/ha. ; No. of trials=8.

Thanjavur

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	54	182	124	60	202	169	272	54·5

Control yield=1666 Kg/ha. ; No. of trials=2.

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	89	148	230	198	261	430	487	45·0

Control yield=2309 Kg/ha. ; No. of trials=23.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	287	115	345	322	510	501	566	95·8

Control yield=2484 Kg/ha. No. of trials=9.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	289	131	163	474	475	734	958	57·6

Control yield=2363 Kg/ha. ; No. of trials=17.

Salem

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	357	178	402	761	513	726	912	127·0

Control yield=3318 Kg/ha. ; No. of trials=2.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	300	12	156	366	407	551	642	57·5

Control yield=2615 Kg/ha. ; No. of trials=6.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—81	—150	225	206	462	137	231	330·0

Control yield=2962 Kg/ha. ; No. of trials=3.

N. Arcot

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	160	158	201	267	321	430	464	72·1

Control yield=2751 Kg/ha. ; No. of trials=6.

Trichy

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	198	264	212	198	530	654	650	109·2

Control yield=2155 Kg/ha. ; No. of trials=5.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	524	260	386	747	467	971	921	190·6

Control yield=3079 Kg/ha ; No. of trials=5.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	174	94	59	164	135	600	670	249·6

Control yield=1725 Kg/ha. ; No. of trials=11.

Tirunelveli

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grainin Kg/ha.	741	450	704	1062	1278	1501	1766	103·0

Control yield=3076 Kg/ha. ; No. of trials=6.

Madurai

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	295	400	425	655	425	725	675	212·1

Control yield=3425 Kg/ha. ; No. of trials=2.

Crop :- Paddy. **Ref :- T.N. 60(S.F.T.).**

Site :- As per results. **Type :- 'M'.**

Object :—Type : A—To study the response of Paddy to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Refer 5. Results. (iii) to (x) N.A.

2. TREATMENTS :

O	=Control (no manure).
N	=22·4 Kg/ha. of N as A/S.
P	=22·4 Kg/ha. of P_2O_5 as Super.
K	=22·4 Kg/ha. of K_2O as Mur. Pot.
NP	=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
NK	=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot,
PK	=22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
NPK	=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960 only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

				Av. response to				Interaction effects				
District	Soil Class	No. of trials	Control yield in	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
				Kharif								
Salem	Red	6	2990	250	440	300	120·0	—190	60	30	40	88·0
S. Arcot	Red	13	2390	170	220	60	106·0	—110	—40	20	180	85·0
Thanjavur	Coastal	20	2980	350	200	160	53·0	50	30	40	60	36·0
Tiruchirapalli	Red	13	2800	290	240	230	24·0	10	—30	—30	20	23·0
Tirunelveli	Red	10	2290	310	440	230	143·0	—130	20	70	120	81·0
				Rabi								
Chingleput	Coastal	5	2150	250	120	190	52·0	20	—10	50	140	34·0
Coimbatore	Red & black	5	3150	220	260	260	217·4	—40	—190	—190	—100	138·0
S. Arcot	Red	5	2990	360	480	230	58·0	—60	—10	70	80	77·0
Thanjavur	Coastal	6	1970	190	190	240	195·0	—10	—20	40	40	60·0
Tiruchirapalli	Red	13	2520	170	180	120	28·0	40	—60	20	50	33·0

Crop :- Paddy. **Ref :- T.N. 61(S.F.T.).**

Site :- As per results. **Type :- 'M'.**

Object :— Type : A To study the response of Paddy to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Refer 5. Results. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

O =Control (no manure)
N =22·4 Kg/ha. of N as A/S
P =22·4 Kg/ha. of P_2O_5 as Super.
K =22·4 Kg/ha. of K_2O as Mur. Pot.
NP =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
NK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
PK =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
NPK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

Same as in type A on page 90.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

				Av. response to				Interaction effects				
District	Soil class	No. of trials	Control yield	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Kharif												
Chaingleput	Coastal	7	1570	200	150	100	12·0	—20	10	—10	40	13·0
Coimbatore	Red & black	5	3700	250	40	70	49·0	−40	30	200	50	35·0
Madurai	Red & black	12	3320	480	100	0	111·0	−120	0	70	80	61·0
Salem	Red	4	2860	370	350	230	135·0	110	70	−50	−10	50·0
S. Arcot	Red	9	2310	420	460	320	49·0	100	40	80	60	49 0
Thanjavur	Coastal	11	2880	150	210	160	51·0	—20	−20	−50	40	54·0
Tiruchirapally	Red	7	2380	240	210	110	33·0	10	10	40	—40	36·0
Rabi												
Chingleput	Coastal	14	2090	240	240	160	23·0	−10	10	20	20	19·0
Coimbatore	Red & black	3	2600	560	380	240	143·0	−50	60	70	40	79·0
Madurai	Red & black	7	3140	340	200	250	67·0	—30	−40	40	−70	89·0
Salem	Red	10	3790	280	630	370	41·0	−150	−110	−100	−190	36·0
S. Arcot	Red	11	2270	230	340	340	132·0	−60	−80	−130	110	93·0
Thanjavur	Coastal	8	3060	120	140	150	45·0	50	10	−40	—40	25·0
Tirunelveli	Red	24	2820	480	520	340	46·0	80	20	−30	90	31·0
Tiruchirapally	Red	20	2090	320	250	140	22·0	50	10	10	60	21·0

Crop :- Paddy. **Ref :- T.N. 60(S.F.T.)**
Site :- (District) : As per results. **Type :- 'M'.**

Object : Type B—To investigate the relative efficiency of different nitrogenous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Coastal for Chingleput and Thanjavur ; Red and black for Coimbatore and Red soil for others. (iii) to(vi) N.A. (vii) As per results. (viii) to (x) N.A.

2. TREATMENTS :

O=Control (No manure).
n_1=22·4 Kg/ha. of N as A/S.
n_2=44·8 Kg/ha. of N as A/S.
n_1'=22·4 Kg/ha. of N as Urea.
n_2'=44·8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44·8 Kg/ha. of N as A/S/N.
n_1'''=22·4 Kg/ha. of N as C/A/N.
n_2'''=44.8 Kg/ha. of N as C/A/N.

3. DESIGN

Same as in type A. on page 90.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. yield of grain in K/ha.

Kharif

District	Soil Class	No. of trials	O.	n_1	n_2	n_1'	n_2'	n_1''	n_2''	n_1'''	n_2'''	G.M	S.E./mean
Chingleput	Coastal	4	1890	2080	2210	2130	2200	2170	2280	—	—	2137	60·8
Salem	Red	2	3140	4140	4450	4010	3830	4010	4110	—	—	3956	246·1
S. Arcot	Red	3	2770	2940	3500	3090	3350	3010	3370	—	—	3147	145·7
Thanjavur	Coastal	21	3140	3390	3670	3470	3790	3550	3820	—	--	3547	44·5
Tiruchirpalli	Red	4	2930	3100	3350	3140	3300	3110	3270	—	—	3171	29·0
Tirunelvei	Red	7	2690	2800	2910	3050	3140	2990	3100	—	—	2954	134·4
S. Arcot	Red	3	1650	1980	2300	1980	2210	—	—	2300	2420	2120	424·3
Thanjavur	Coastal	2	2560	3090	3480	3290	3800	—	—	2860	3310	3199	110·3
Tiruchipalli	Red	4	3060	3360	3630	3480	3730	—	—	3210	3370	3406	96·2
Tirunelveli	Red	3	2390	2870	2840	2840	3040	—	—	2990	3260	2886	138·6

Rabi

District	Soil Class	No. of trials	O.	n_1	n_2	n_1'	n_2'	n_1''	n_2''	n_1'''	n_2'''	G.M	S.E./mean
Coimbatore	Red & black	3	3300	3600	3710	3640	3750	3780	3930	—	—	3673	85·6
S. Arcot	Red	11	2710	3220	4270	3260	3840	3200	3850	—	—	3479	99·0
Thanjavur	Coastal	11	2910	3080	3250	3090	3350	3090	3280	—	—	3150	66·5
Tiruchirappali	Red	10	2640	3020	3220	3000	3210	3110	3110	—	—	3044	46·0

Crop :- Paddy. **Ref :- T.N. 61(S.F.T.)**

Site :- (District) As per Results. **Type :- 'M'.**

Object :—Type B :To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) coastal for chingleput Red and black for Coimbatore and Madurai and Red for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

O =Control (no manure)
n_1 =22·4 Kg/ha. of N as A/S.
n_2 =44·8 Kg/ha. of N as A/S.
n_1' =22·4 Kg/ha. of N as Urea.
n_2' =44·8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44.8 Kg/ha. of N as A/S/N.
n_1''' =22·4 Kg/ha. of N as C/A/N.
n_2''' = 44·8 Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in type A on page 90.

4. GENERAL :
(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. Yield of grain in Kg/ha.

Kharif

District	No. of trials	O	n_1	n_2	n_1'	n_2'	n_1''	n_2''	n_1'''	n_2'''	S.E./mean
Chingleput	12	1560	1690	1780	1820	1910	1800	1910	—	—	28·3
Coimbatore	4	3090	3340	3350	3440	3520	3470	3550	—	—	75·7
Madurai	10	3080	3630	3770	3600	3780	3480	3810	—	—	89·8
Salem	3	3200	3500	3950	3800	4210	3920	3710	—	—	81·3
S. Arcot	2	2820	3000	3500	3260	3470	3160	3770	—	—	154·9
Tiruchirapalli	9	1880	1940	2340	2060	2360	2070	2320	—	—	36·8
Salem	3	1740	1850	2010	2040	2250	—	—	1890	2080	42·4
						Rabi					
Chingleput	14	1710	1880	2000	2020	2100	1980	2040	—	—	18·4
Coimbatore	2	2290	2970	3170	3430	3780	2830	2930	—	—	195·9
Madurai	4	3240	3740	3870	3640	4140	3570	3920	—	—	132·2
Salem	6	3500	4000	4410	3930	4580	4000	4310	—	—	52·3
Tiruchirapalli	9	1980	2260	2300	2030	2320	2020	2200	—	—	52·3
Tirunelveli	15	2870	3200	3480	3520	3820	3370	3690	—	—	53·0
Salem	3	2180	2240	2370	2410	2490	—	—	2410	2770	93·3
Truchirapalli	3	2730	3210	3450	3160	3460	—	—	2990	3200	60·1

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 63(99), 64(104).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'MV'.**

Object :—To study the effect of different levels of N on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 3.7.63/30.7.63; 1.7.64/21.7.64. (iv) (a) 2 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 33 cm.; 17 cm. (x) 8.10.63; 6, 9, 12.10.64.

2. TREATMENTS :

Main-plot treatments :

4 levels of N as A/S : N_0=0, N_1=22·4, N_2=33·6 and N_3=67·2 Kg/ha.

Sub-plot treatments :

7 varieties: V_1=A.D.T.—3, V_2=A.D.T.—9, V_3=A.D.T.—20, V_4=T.K.M.—6, V_5=2701, V_6=2818 and V_7=A.D.T.—27.

V_1 to V_3 are lodging varieties and V_4 to V_7 are non-lodging varieties.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 4·6 m. × 1·2 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height of plants and yield of grain. (iv) (a) 1963 to 1964. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Both the error variances are homogeneous and main-plot Treatments × years interaction is absent, sub-plot Treatments × years interaction is present.

5. RESULTS :

(i) 4882 Kg/ha. (ii) (a) 646·0 Kg/ha. [based on 21 d.f. made up of Treatments × years interaction and pooled error]. (b) 1477·0 Kg/ha. [based on 24 d.f. made up of various components of Treatments × years]. (iii) Main effect of N is highly significant and that of V is significant. (iv) Av. yield pf grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean
N_0	4060	4798	4608	4396	4866	4833	4979	4648
N_1	4559	5281	4642	4362	5381	5124	5583	4990
N_2	4530	4934	4590	4887	5672	5617	5504	5105
N_3	4539	5112	4456	3838	5394	4921	5229	4784
Mean	4422	5031	4574	4371	5328	5124	5324	4882

C.D. for N marginal means=253·8 Kg/ha.
C.D. for V marginal means=762·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(47).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Alluvial clay. (iii) 27.7.60/18 to 20.9.60. (iv) (a) 3 to 4 ploughings. (b) N.A. (c) 28 Kg/ha. (d) 25 cm. × 13 cm. (e) 4. (v) 5605 Kg/ha. of G.M. + 168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 115 cm. (x) 7 to 9.2.61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·3 Kg/ha.
(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

Strips in perpendicular direction :

6 Varieties : V_1=A.D.T.—1, V_2=A.D.T.—2, V_3=A.D.T.—10, V_4=A.D.T.—25, V_5=CO—19 and V_6=CO—25.

K_2O applied as basal dressing just before planting N applied in two equal doses half just before planting as basal dressing and the other half 40 days after planting as top-dressing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 10 strips in one direction and 6 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 4·6 m. × 4·6 m. (b) 4·3 m. × 4·5 m. (v) 13 cm. × 6 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (ii) Yield of grain. (iv) 1958 to 1960. (b) Yes. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3685 Kg/ha. (ii) (a) 431·4 Kg/ha. (for NK). (b) 673·6 Kg/ha. (for V). (c) 408·5 Kg/ha. (for V×NK). (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	3437	3920	3898	3511	3803	3827	3706	3759	3733
N_1	3076	3696	3839	3444	3612	3653	3598	3508	3553
N_2	3304	3536	4005	3507	4187	3976	3755	3749	3752
N_3	2899	3425	4008	3425	4109	4090	3659	3660	3659
N_4	3423	3618	3968	3250	4240	3871	3819	3638	3728
Mean	3228	3639	3944	3427	3990	3883	3708	3663	3685
K_0	3188	3721	3918	3540	3986	3893			
K_1	3267	3557	3969	3316	3995	3873			

C.D. for V marginal means=320·9 Kg/ha.

Crop :- Paddy (*Kuruvai*).

Ref :- T.N. 60(48).

Site :- Reg. Res. Stn., Aduthurai.

Type :- 'M'.

Object :—To study the effect different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Alluvial clay. (iii) 24.6.60/13.7.60 to 16.7.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 30 cm. (x) 8 to 15.10.60.

2. TREATMENTS :

Strips in one direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16·8$, $N_2=33·6$, $N_3=50·4$ and $N_4=67·3$ Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : $K_0=0$ and $K_1=33·6$ Kg/ha.

Steps in perpendicular direction :

6 varieties : V_1=A.D.T.—3, V_2=A.D.T.—20, V_3=T.K.M.—6, V_4=CO.—29, V_5=A.D.T.—16 and V_6= A.D.T.—9.

N applied in two equal doses half just before planting as basal dressing and the other half 25 days after planting as top-dressing. K_2O applied as basal dressing just before planting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 10 strips in one direction and 6 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 4·6 m.×4·6 m. (b) 4·3 m.×4·5 m. (v) 13 cm.×5 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (b) Nil. (iii) Yield of grain. (iv) (a) 1958 to 1960. (b) Yes. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4364 Kg/ha. (ii) S.E. (NK)=492·5 Kg/ha., S.E. (V)=987 4 Kg/ha., S.E. (V×NK)=264·0 Kg/ha. (iii) Main effect of V is highly significant. Interaction N×V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	3782	4458	4148	4698	4082	4372	4146	4367	4257
N_1	3795	4342	4222	4864	4011	4599	4224	4387	4305
N_2	3801	4636	4237	4958	4257	4820	4573	4330	4451
N_3	3830	4387	4493	4493	4171	4696	4381	4456	4418
N_4	3681	4225	4599	4872	4096	4844	4232	4541	4386
Mean	3778	4410	4340	4865	4123	4666	4311	4416	4364
K_0	3776	4351	4304	4840	4046	4547			
K_1	3779	4468	4375	4890	4201	4785			

C.D. for V marginal means =470·5 Kg/ha.
C.D. for N means at the same level of V means =313·58 Kg/ha.
C.D. for V means at the same level of N means =524·02 Kg/ha.

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 60(53).**

Site :- Reg. Res, Stn., Aduthurai. **Type :- 'MV'.**

Object :—To study the effect of different times of application and sources of N on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Alluvial clay. (iii) 17, 24.6.1960/17, 18.7.1960. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 30 cm. (x) 1, 15.10.1960.

2. TREATMENTS :

Strips in one direction :

2 varieties : V_1=A.D.T.—3 and V_2=A.D.T.—9.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 2 sources of 33·6 Kg/ha. of N : S_1=Urea and S_2=A/S.

(2) 3 times of application of N : T_1=Full dose applied at planting as basal dressing, T_2=Half at the time of planting as basal dressing and half 30 days after planting as top dressing and T_3=Full dose applied 30 days after planting as top-dressing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 2 strips in one direction; 6 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 6·0 m.×4·3 m. (v) 5 cm.×13 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960 to 1962 (Experiment failed in 1962 and design changed in 1961]. (b) N.A. (c) Nil. (v) N.A. (vi) and (vi) Nil.

5. RESULTS :

(i) 3882 Kg/ha. (ii) (a) 745·0 Kg/ha. (for V). (b) 289·0 Kg/ha. (for ST). (c) 350·9 Kg/ha. (for V×ST). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	T_1	T_2	T_3	Mean
I_1	3689	4014	3933	3738	3883	3851
I_2	3793	4032	3948	3792	3996	3912
Mean	3793	4023	3941	3765	3996	3882
T_1	3687	4194				
T_2	3629	3901				
T_3	3906	3973				

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 61(51).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'MV'.**

Object :—To study the effect of different times of application and source of N on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) As per treatments. (ii) Clay loam. (iii) 24.6.1961, 1.7.1961/29, 30.7.1961. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×10 cm. (e) 2. (v) 5 to 5 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 43 cm. (x) 15, 27.10.1961.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 sources of 33·6 Kg/ha. of N_1 : S_1=A/S and S_2=Urea.

(2) 2 varieties : V_1=ADT-3 and V_2=ADT-9.

Sub-plot treatments :

(1) 3 times of application of fertilizers : T_1=Full dose at planting as basal dressing, T_2=Half dose at planting as basal dressing and half 30 days after planting as top dressing and T_3=Full dose 30 days after planting as top dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main.plot. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 6·0 m.×4·3 m. (v) 5 cm.×13 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts, height of plant and grain yield. (iv) (a) 1960-1962 (Expt. failure in 1962 and design modified in 1961). (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3157 Kg/ha. (ii) (a) 412·4 Kg/ha. (b) 314·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	T_1	T_2	T_3	Mean
S_1	3065	3194	3273	3171	2945	3130
S_2	3260	3107	3249	3263	3039	3184
Mean	3163	3151	3261	3217	2992	3157
T_1	3292	3229				
T_2	3239	3196				
T_3	2957	3027				

Crop :- Paddy (*Kar*). **Ref :- T.N. 60(4), 61(28), 62(41).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'MV'.**

Object ;—To study the effect of different sources and times of application of N on different varieties of Paddy.

1. BASAL CONDITIONS

(i) (a) N.A. for 62(41) ; Paddy-Paddy for others. (b) Paddy. (c) 5604 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(4) ; 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Clay loam. (iii) 15, 21.6.1960 ; 14, 23.6.1961/18.7.1961 ; N.A./20.7.1962. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 46 Kg/ha. (d) 10 cm.×10 cm. for 60(4) ; 20 cm.×15 cm. for others. (e) 2. (v) 5604 Kg/ha. of G.L.+168 Kg/ha. of Super for 60(4) ; 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super for 61(28) ; 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(41). (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 15 cm., 15 cm., 14 cm. (x) 3, 10.10.1960., 26.9.1961., 8.10.1962.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V_1=ASD—1 and V_2=ASD—8.

(2) 2 sources of N at 33·6 Kg/ha. : S_1=Urea and S_2=A/S.

Sub-plot treatments :

3 times of application of N : T_1=Full dose broadcast at planting, T_2=Half dose broadcast at planting+half as top dressing one month after planting and T_3=Full dose as top dressing one month after planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 6·1 m.×3·4 m. for 60(4) ; 6·3 m.×3·5 m. for others. (b) 5·9 m.×3·2 m. for 60(4) ; 6·1 m.×3·4 m. for others. (v) 10 cm.×10 cm. for 60(4) ; 8 cm.×8 cm. for others. (vi) Yes.

4. GENERAL :

(i) Satisfactory for 60(4) ; Good for others. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960—1962. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous. Results of individual years are presented under 5. Results.

5. RESULTS :

60(4)

(i) 3240 Kg/ha. (ii) (a) 394·6 Kg/ha. (b) 213·7 Kg/ha. (iii) Main effects of V and T are highly significant. Interaction S×T is significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	Mean
V_1	3561	3713	3649	3597	3683	3641
V_2	2659	2933	2928	2894	2783	2839
Mean	3110	3323	3288	3246	3233	3240
S_1	3193	3337	3210			
S_2	3027	3309	3367			

C.D. for V marginal means=198·2 Kg/ha.
C.D. for T marginal means=124·7 Kg/ha.
C.D. for S means at the same level of T means=244·8 Kg./ha.
C.D. for T means at the same level of S means=176·3 Kg./ha.

61(28)

(i) 3634 Kg/ha. (ii) (a) 503·2 Kg/ha. (b) 211·1 Kg/ha. (iii) Main effects of V and T are highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	Mean
V_1	3879	4033	4137	4006	4027	4016
V_2	3104	3408	3244	3153	3351	3252
Mean	3492	3720	3691	3579	3689	3634
S_1	3516	3651	3571			
S_2	3467	3790	3810			

C.D. for V marginal means=252·7 Kg/ha.
C.D. for T marginal means=123·1 Kg/ha.

62(41)

(i) 4538 Kg/ha. (ii) (a) 600·9 Kg/ha. (b) 394·6 Kg/ha. (iii) Main effects of V, T and interaction V×S are highly significant. Main effect of S and interaction V×T are significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	Mean
V_1	5490	5761	6296	5450	6194	5822
V_2	3102	3297	3364	3304	3204	3254
Mean	4256	4529	4830	4377	4699	4538
S_1	4049	4320	4762			
S_2	4462	4738	4898			

C.D. for V or S marginal means=301·7 Kg/ha.
C.D. for T marginal means =230·2 Kg/ha.
C.D. for body of V×S table =426·7 Kg/ha.
C.D. for V means at the same level of T means=402·04 Kg.(ha.
C.D. far T means at thn same level of V means=325·6 Kg./ha.

Crop :- Paddy (*Pishanam*). **Ref :- T.N. 60(72).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (ii) Clay loam. (iii) Aug., 1960/Oct., 1960. (iv) (a) 4 ploughings and levelling. (b) Transplanting (c) 44 Kg/ha. (d) 20 cm.×10 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 103 cm. (x) 13, 15.3.1961.

2. TREATMENTS :

Strips in one direction :

4 varieties : V_1=AS D-5 ; V_2=AS D-6 ; V_3=AS D-11 and V_4=Co-2.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$; $N_1=16·8$, $N_2=33·6$; $N_3=50·4$ and $N_4=67·2$ Kg/ha.
(2) 2 levels of K_2O as Mm. Pot. : $K_0=0$ and $K_1=33·6$ Kg/ha.

K_2O was applied as basal dressing before planting and N as top dressing 45 days after planting.

3. DESIGN :

(i) Strip plot. (ii) 4 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×3·4 m. (b) 5·7 m.×3·2 m. (v) One row on all sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain and straw yield. (iv) (a) and (b) 1960 only. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2203 Kg/ha. (ii) (a) 832·9 K/gha. (for V). (b) 396·5 Kg/ha. (for NK). (c) 324·4 Kg/ha. for (V×NK). (iii) Main effect of V is highly significant and N effect is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	K_1	K_2	Mean
N_1	2600	2027	1058	2235	1985	1989	1988
N_2	2636	2292	1331	2444	2121	2231	2176
N_3	2865	2242	1240	2476	2236	2176	2206
N_4	2929	2511	1311	2676	2435	2278	2357
N_5	2806	2573	1135	2628	2277	2294	2286
Mean	2768	2335	1215	2492	2211	2194	2203
K_1	2804	2295	1192	2553			
K_2	2731	2375	1238	2431			

C.D. for V marginal means=421·2 Kg/ha.
C.D. for N marginal means=203·4 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(59).**

Site :- Paddy Breeding Stn., Coimbatore. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (ii) Clay loam. (iii) 22.7.60/5 to 7.9.60. (iv) (a) Puddling. (b) Transplanting. (c) 33·6 Kg/ha. (d) 25 cm.×13 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of super. (vi) As per treatments. (vii) Irrigated. (viii) Intercultivating at every 15 days interval. (ix) 39 cm. (x) 16 to 21.1.61.

2. TREATMENTS :

Strips in one direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·3 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

Strips in orthogonal direction :

6 varieties : V_1=CO—1, V_2=CO—2, V_3=ASD—5, V_4=ASD—11, V_5=GEB-24 and V_6=6538.

N applied in the soil in two equal doses, half at planting as basal dressing and half 30 to 45 days after planting as top dressing K_2O applied in the soil as basal dressing just before the final ploughing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 10 strips in one direction and 6 strips in orthogonal direction. (iii) 4. (iv) (a) 2·5 m.×5·5 m. (b) 2·3 m.×5·3 m. (v) One row all round. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Height, tiller counts, yield of grain and lengths of panicle. (iv) (a) 1958—1960. (b) Yes. (c) Nil. (v) (a) Tirurkuppam and Palur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) General mean=2070 Kg/ha. (ii) (a) 504·1 Kg/ha. (for V). (b) 847·2 Kg/ha. for (NK). (c) 336·4 Kg/ha. (for V×NK). (iii) Main effect of N and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	1436	1720	2069	1981	1319	1568	1743	1621	1682
N_1	1789	2246	2169	2228	1580	2113	2068	1474	2021
N_2	1501	1902	1957	2034	1210	2026	1683	1861	1772
N_3	2239	2504	2764	2834	1780	2588	2456	2480	2468
N_4	2268	2697	2603	2925	1770	2187	2554	2263	2408
Mean	1867	2214	2312	2400	1532	2106	2101	2040	2070
K_1	1844	2189	2386	2450	1569	2166			
K_2	1890	2239	2239	2351	1494	2026			

C.Df. for N marginal means=354·8 Kg/ha.

C.D. for V marginal means=240·2 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(49).**

Site :- Paddy Breeding Stn., Coimbatore. **Type :- 'MV'.**

Object :— To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (ii) Clay loam. (iii) 22.7.60/30, 31.8.60. (iv) (a) Puddling. (b) Transplanting. (c) 33·6 Kg/ha. (d) 25 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) Intercultivating at every 15 days interval. (ix) 36 cm. (x) 4 to 6.12.60.

2. TREATMENTS :

Strips in one direction :

All combinations of (1) and (2).

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·3 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

Strips in perpendicular direction :

6 varieties : V_1=Co—10, V_2=Co –13, V_3=Co—18, V_4=Co—23, V_5=T.K.M—6 and V_6=6522.

N applied in the soil in two equal doses, half at planting as basal dressing and half 30 days after planting as top dressing. K_2O applied as basal dressing just before final ploughing.

3. DESIGN :

(i) Strip plot. (ii) (a) 10 strip in one directon and 6 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 2·8 m.×4·2 m. (b) 2·5 m.×4·1 m. (v) One row all round. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Height, tiller counts, yield of grain and length of panicle. (iv) (a) 1958 to 1960. (b) Yes. (c) Nil. (v) (a) Tirurkuppam and Palur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1808 Kg/ha. (ii) (a) 806·9 Kg/ha. (for NK) (b) 628·9 Kg/ha. (for V) (c) 522·9 Kg/ha. (for (V×NK). (iii) Main effects of V and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	1576	1423	1651	1823	1236	1177	1683	1279	1481
N_1	1617	1272	1655	1849	1317	1306	1590	1415	1503
N_2	1703	1445	1694	2427	1378	1548	1540	1858	1699
N_3	1934	1766	2149	2685	1857	1996	2098	2032	2064
N_4	2094	2197	2389	2612	1888	2587	2174	2416	2294
Mean	1785	1621	1908	2279	1535	1723	1817	1800	1808
K_0	1767	1562	1975	2371	1506	1720			
K_1	1802	1679	1840	2187	1565	1726			

C.D. for N marginal means=338·0 Kg/ha.

C.D. for V marginal means=299·6 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T N. 60(54).**

Site :- Paddy Breeding Stn., Coimbatore. **Type :- 'MV'.**

Object :— To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (ii) Clay loam. (iii) 9.9.60/26, 27.10.60. (iv) (a) Puddling, (b) Transplanting. (c) 33·6 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) Intercultivating at every 15 days interval. (ix) 30 cm. (x) 4.3.61.

2. TREATMENTS :

Strips in one direction :

All combinations of (1) and (2).

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33 6, N_3=50·4 and N_4=67·3 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

Strips in perpendicular direction :

4 varieties : V_1=Co.—4, V_2=Co.–12, V_3=Co.—19 and V_4=Co.—25.

N applied in the soil in two equal doses, half at planting as basal dressing and half 30 to 45 days after planting as top dressing. K_2O applied in the soil as basal dressing just before final ploughing.

3. DESIGN :

(i) Strips-plot. (ii) (a) 10 strips in one direction and 4 strips in perpendicular direction. (b) N.A. (iii) 6. (iv) (a) 5·8 m.×2·1 m. (b) 5·6 m.×1·0 m. (v) One row all round. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 61. (b) Yes. (c) Nil. (v) (a) Tirurkuppam and palm. (b) Nil. (vi) and (vii) Nil,

5. RESULTS :

(i) 2354 Kg/ha. (ii) (a) 359·4 Kg/ha. (for V), (b) 531·9 Kg/ha. (for NK), (c) 318·8 Kg/ha. (for V×NK). (iii) Main effect of N is highly significant and effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	K_0	K_1	Mean
N_0	1852	1944	1829	2159	1902	1990	1946
N_1	2055	098	1950	2069	2119	1967	2043
N_2	2266	2427	2177	2405	2276	2361	2319
N_3	2779	2733	2618	2726	2586	2842	2714
N_4	2606	2757	2722	2908	2772	2724	2748
Mean	2312	2392	2259	2453	2331	2377	2354
K_0	2278	2402	2264	2380			
K_1	2345	2382	2254	2526			

C.D. for N marginal means=218·9 Kg/ha.

C.D. for V marginal means=139·8 Kg/ha.

Crop :- Paddy (*Sornavari*). **Ref :- T.N. 60(86), 63(119), 64(119).**

Site :- Agri. Res. Stn., Palur. **Type :- 'MV'.**

Object :— To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super+85 Kg/ha. of A/S. (ii) Loamy soil. (iii) 5.6.60/27.6.60 ; 31.5.63/28.6.63 ; 29.5.64/23.6.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 25 cm.×10 cm. for 63 (119) ; 20 cm.×10 cm. for others. (e) 2. (v) 5600 Kg/ha. of G.L. +170 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings+2 hoeings for 60 (86) ; 2 weedings for others. (ix) 31 cm. ; 38 cm. ; 56 cm. (x) 12.9.1960 ; 16 to 29.9.1963 ; 30.9.1964 to 4.10.64.

2. TREATMENTS :

Treatments in one direction :

6 varieties : V_1=TKM=3, V_2=TKM—6, V_3=Co.–29, V_4=PLR—2, V_5=Co.—13 and V_6=Co–18.

Treatments in perpendicular direction :

All combinations of (1) and (2).

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4, and N_4=67·2 Kg/ha.

(2) 2 levls of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

N applied in two doses : ½ at planting as basal dressing and ½ after 30 days after planting as top dressing. K_2O was applied as basal dressing before planting.

3. DESIGN :

(i) Strip-plot. (ii) 6 strips in one direction, 10 strips in orthogonal direction. (b) N.A. (iii) 4. (iv) (a) 3·8 m.×2·7 m. for 60 (86) ; 3·7 m.×3·1 m. for others. (b) 3·5 m.×2·5 m. for 60 (86) ; 3·6 m.×2·9 m. for others. (v) 20 cm.×10 cm. for 60 (86) ; 5 cm.×12 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959 to 64 (Not conducted in 1961 and 1962. In 1959, conducted in different season). (b) No. (c) Nil. (v) (a) Coimbatore and Tirurkuppam. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous.

5. RESULTS :

60(86)

(i) 2887 Kg/ha. (ii) (a) 638·0 Kg/ha. (for V), (b) 705·7 Kg/ha. (for NK). (c) 446·4 Kg/ha. (for V×NK). (iii) Main effect of V is highly significant and interaction V×N is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	2787	3083	3129	3037	2984	3007	3001	3004
V_2	3404	3142	2991	3214	2997	3153	3146	3150
V_3	3266	3109	3352	2715	3135	3072	3158	3115
V_4	2768	2761	2702	2519	2709	2791	2512	2692
V_5	3010	3135	2696	2991	3286	2959	3088	3024
V_6	2387	2492	2709	2164	1922	2359	2311	2335
Mean	2937	2954	2930	3773	2839	2890	2883	2883
K_0	2955	2989	2916	2739	2851			
K_1	2919	2919	2943	2807	2827			

C.D. for V marginal means=304·1 Kg/ha.

C.D. for V means at the same level of N means =495·2 Kg/ha.

C.D. for N means at the same level of V means =496·6 Kg/ha.

63(119)

(i) 3160 Kg/ha. (ii) S.E. (V)=711·7 Kg/ha. S.E.(NK)=358·2 Kg/ha. S.E. (V×NK)=321·5 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	N_5	K_0	K_1	Mean
V_1	2529	2491	2775	2667	2743	2531	2743	2637
V_2	3598	3598	3435	3321	3258	3407	3477	3442
V_3	3636	3598	3799	3422	3573	3558	3654	3606
V_4	3435	3674	3611	3498	3573	3553	3563	3559
V_5	2956	3045	3070	2994	2982	3039	2979	3009
V_6	2579	2856	2856	2866	2478	2727	2687	2707
Mean	3122	3210	3254	3112	3101	3136	3184	3160
K_0	3070	3187	3221	3078	3124			
K_1	3175	3233	3288	3145	3078			

C.D. for V marginal means=339·0 Kg/ha.

64(119)

(i) 3123 Kg/ha. (ii) S.E. (V)=898·0 Kg/ha. S.E. (NK)=497·6 Kg/ha. S.E. (V×NK)=324·9 Kg/ha. (iii) Main effect of V is highly signific·nt and interaction N×K is significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	N_5	K_0	K_1	Mean
V_1	2818	2479	2692	2806	2667	2632	2753	2692
V_2	3347	3296	3498	3246	3233	3261	3387	3324
V_3	3749	3485	3586	3963	3800	3714	3719	3717
V_4	3372	3171	3284	3120	3108	3120	3301	3211
V^5	3020	3082	3095	2944	2944	2924	3110	3017
V_4	2881	2969	2718	2617	2693	2813	2738	2776
Mean	3198	3080	3146	3116	3074	3077	3168	3123
K_0	3204	2915	2919	3191	3158			
K_1	3191	3246	3372	3041	2990			

C.D. for V marginal means=427·9 Kg/ha.
C.D. for N×K table =294·8 Kg/ha.

Crop :- Paddy (*Navari*). **Ref :- T.N. 60(88), 61(57), 64(224).**

Site :- Agri. Res. Stn., Palur. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super+85 Kg/ha. of A/S. (ii) Loamy soil. (iii) 26.12.60/28.1.61 ; 25.1.62 ; 24, 25.2.62 ; 2.1.64/30, 31.1.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 20 cm.+10 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super. (v) As per treatment. (vi) Irrigated. (viii) 2 weedings+2 hoeings for 60 (88) ; 2 weedings for others. (ix) 20 cm. ; 3 cm. ; 2 cm. (x) 28.4 61 ; 19.5.62 to 2.6.62 ; 6, 8.5.64.

2. TREATMENTS :

Strips in one direction :
4 varieties : V_1=TKM—6, V_2=Co.—13, V_3=Co.—18 and V_4=Co.—29.
Strips in orthogonal direction:
All combinations of (1) and (2)
(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·2 Kg/ha.
(2) 2 levels of K_2O as Pot. Sul. : K_0=0, and K_1=33·6 Kg/ha.
N applied in two doses : ½ at the time of planting as basal dressing and ½ after 45 days of planting as top dressing. K_2O applied in puddle as basal dressing before transplanting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 4 strips in one direction and 10 strips in orthogonal direction. (b) N.A. (iii) 4. (iv) (a) 3·8 m.×2·7 m. for 60 (88) ; 3·7 m.×3·1 m. for others. (b) 3·6 m.×2·8 m. for 64·214 ; 3·4 m.×2·5 m. for others. (v) 20 cm.×10 cm. for 60 (88) ; 13 cm.×25 cm. for 61 (57) ; 6 cm.×12 cm. for 64 (124). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 64 (modified in 1960. Not conducted in 1962 and 1963). (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous. The results of individual years are presented under 5. Results.

5. RESULTS :

60(88)

(i) 3170 Kg/ha. (ii) (a) 1065·1 Kg/ha. (for V). (b) 501·0 Kg/ha. (for NK). (c) 538·9 Kg/ha. for (V×NK). (iii) Main effects of V,N,K and interaction V×N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	V_1	V_2	V_3	V_4	K_0	K_1	Mean
V_1	2827	3384	3509	3916	3555	3573	3303	3438
V_2	2348	2374	2446	1758	1869	2293	2025	2159
V_3	2781	3233	3529	3496	3220	3329	3174	3252
V_3	3352	3483	3706	4184	4421	3998	3660	3829
Mean	2827	3119	3298	3338	3266	3298	3041	3170
K_0	3033	3233	3312	3345	3568			
K_1	2620	3004	3283	3332	2964			

C.D. for V marginal means =538·8 Kg/ha.
C.D. for N marginal means =257·1 Kg/ha.
C.D. for K marginal means =162·5 Kg/ha.
C.D. V for means at the same levels of N =719·7 Kg/ha.
C.D. for N means at the same levels of V =530·9 Kg/ha.

61(57)

(i) 2263 Kg/ha. (ii) (a) 1238·9 Kg/ha. (for V), (b) 781·7 Kg/ha. (for NK), (c) 344·4 Kg/ha. for (V×NK). (iii) None of the effects is significant. (iv) Av. yleld of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	1865	2125	2299	2415	2371	2261	2169	2215
V_2	1822	1938	2111	2328	1923	2065	1984	2024
V_3	1966	2212	2154	2357	2285	2302	2088	2195
V_4	2256	2444	2660	2863	2863	2805	2429	2617
Mcan	1977	2180	2306	2491	2361	2358	2168	2263
K_0	2031	2234	2538	2451	2538			
K_1	1923	2126	2075	2531	2183			

64(124)

(i) 3418 Kg/ha. (ii) (a) 565·4 Kg/ha. (for V), (b) 593·8 Kg/ha. (for NK), (c) 346·0 Kg/ha. (for V×NK). (iii) Main effect of V and interaction V×N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	N_5	K_0	K_1	Mean
V_1	2831	3145	3334	3447	3535	3311	3206	3258
V_2	3045	2692	3007	2655	2504	2823	2738	2781
V_3	4001	3950	4378	4139	4101	4217	4011	4114
V_4	3045	3472	3623	3623	3825	3638	3397	3518
Mean	3230	3315	3586	3466	3491	3497	3338	3418
K_0	3308	3416	3611	3391	3761			
K_1	3152	3214	3560	3542	3221			

C.D. for V marginal means =285·9 Kg/ha.
C.D. for V means at the same levels of N =419·4 Kg/ha.
C.D. for N means at the same levels of V =426·3 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(87).**

Site :- Agri. Res. Stn., Palur. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super+85 Kg/ha. of A/S. (ii) Loamy soil. (iii) 11.8.60/2.10.60. (iv) (a) 3 ploughings with iron plough. (b) Transplanting. (c) 35 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+170 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 147 cm. (x) 23.1.1961.

2. TREATMENTS :

Strips in one direction :

5 varieties : V_1=CO—25, V_2=CO—19, V_3=GEB–24, V_4=CO—5 and V_5=CO—30.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16·8$, $N_2=33·6$, $N_3=50·4$ and $N_5=67·3$ Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : $K_0=0$ and $K_1=33·6$ Kg/ha.

K_2O applied in the puddle as basal dressing before planting. N applied in two equal doses, half at planting as basal dressing and half 45 days after planting as top dressing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 5 strips in one direction, 10 strips in perpendicular direction. (b) N A. (iii) 4. (iv) (a) 3·8 m.×2·7 m. (b) 3·4 m.×2·5 m. (v) One row all around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Height measurement and grain yield. (iv) (a) 1959—1964 (modified in 1961). (b) No. (c) Nil. (v) Coimbatore and Tirurkuppam. (vi) and (vii) Nil.

5. RESULTS :

(i) 6285 Kg/ha. (ii) (a) 2258·8 Kg/ha. (for V). (b) 1100.8 Kg/ha. (for NK). (c) 907·7 Kg/ha. (for V×NK). (iii) Main effect of V and N are highly significant and V×N interaction is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
N_1	7739	8729	8920	8933	7943	8156	8749	8453
V_2	6408	7352	7431	8041	8272	7393	7608	7501
V_3	2761	2564	2499	2912	2978	2684	2802	2743
V_4	5621	6237	6900	6926	6310	6512	6286	6399
V_5	5668	6093	6913	7352	5627	6307	6354	6331
Mean	5639	6195	6532	6833	6226	6210	6360	6285
K_0	5552	5966	6600	6921	6042			
K_1	5756	6425	6464	6745	6409			

C.D. for V marginal means =1100·6 Kg/ha.
C.D. for N marginal means =505·0 Kg/ha.
C.D. for V means at the same level of N=1362·1 Kg/ha.
C.D. for N means at the same level of V=950·3 Kg/ha.

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 60(51).**
Site :- Agri. Res. Stn., Pattukottai. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) Nil. (ii) Sandy loam. (iii) 29.6.1960 to 7.7.1960/25, 26.7.1960. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of super. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 16.10.1960 to 4.11.1960.

2. TREATMENTS :

Strips in one direction :

6 varieties : V_1=ADT—3, V_2=ADT—9, V_3=ADT—16, V_4=ADT—18, V_5=ADT—20 and V_6= ADT—25.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·3 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

N applied in two equal doses, half at planting as basal dressing and half 30 days after planting as top dressing. K_2O applied just before final ploughing as basal dressing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 6 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) and (b) 3 m.×3 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 1960. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2962 Kg/ha. (ii) (a) 551·7 Kg/ha. (for V). (b) 386·8 Kg/ha. (for NK). (c) 349·2 Kg/ha. (for $V \times NK$). (iii) Main effects of V and N and interaction $V \times N$ are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	2523	3232	2390	2733	2411	2086	2493	2632	2562
N_1	2838	3570	2702	3418	2731	2495	2967	2950	2959
N_2	3193	3664	2913	3278	3038	2445	3151	3026	3088
N_3	3380	3527	2948	3069	3457	2523	3144	3157	3151
N_4	3414	3738	3017	2691	3143	2286	3045	3051	3048
Mean	3070	3546	2794	3038	2956	2367	2961	2963	2962
K_0	3118	3530	2791	2988	2968	2365			
K_1	3021	3562	2797	3087	2944	2368			

C.D. for V marginal means =263·0 Kg/ha.
C.D. for N marginal means =161·9 Kg/ha.
C.D. for V means at the same level of N=405·6 Kg/ha.
C.D. for N means at the same level of V=354·5 Kg/ha.

Crop :- Paddy (*Thaladi*). **Ref :- T.N: 60(50).**

Site :- Agri. Res. Stn., Pattukottai. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) Nil. (ii) Sandy soil. (iii) 21.9.60/6th to 10.11.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 28 Kg/ha. (d) 15 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+ 168 Kg/ha. of super (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 15 to 25.2.1961.

2. TREATMENTS :

Strips in one direction :

6 varieties : V_1=ADT—8, V_2=ADT—21, V_3=ADT—22, V_4=ADT—24, V_5=ADT—25 and V_6=6538.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16·8$, $N_2=33·6$, $N_3=50·4$ and $N_4=67·3$ Kg/ha.

(2) 2 levels of K_2O Pot. Sol. : $K_0=0$ and $K_1=33·6$ Kg/ha.

N applied in two equal doses, half at planting as basal dressing and half 45 days after planting as top dressing. K_2O was applied as basal dressing just before final ploughing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 6 strips in one direction ; 10 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) and (b) 3 m. × 3 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 1960. (b) No. (c) Nil. (iv) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2242 Kg/ha. (ii) (a) 696·8 Kg/ha. (for V). (b) 553·2 Kg/ha. (for NK). (c) 295·1 Kg/ha. (for V×NK). (iii) Main effect of V is significant and effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	1938	1570	1846	1999	1737	1956	1804	1878	1841
N_1	2118	1746	2151	2135	1900	2286	2103	2010	2056
N_2	2644	1796	2391	2209	2121	2473	2291	2254	2273
N_3	2688	2134	2695	2850	2270	2390	2437	2572	2504
N_4	2900	2147	2719	2741	2252	2461	2491	2583	2537
Mean	2457	1879	2361	2387	2056	2313	2225	2259	2242
K_0	2422	1956	2293	2283	2031	2365			
K_1	2493	1802	2428	2491	2081	2261			

C.D. for V marginal means=319·7 Kg/ha.

C.D. for N marginal means=231·7 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(52).**

Site :- Agri. Res. Stn., Pattukottai. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) Nil. (ii) Sandy soil. (iii) 12.8.60/6, 7.9.1960. (iv) (a) 3 to 4 ploughings. (b) Nil. (c) 28 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super. (vi) As per treatment. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 30.1.1961 to 2.2.1961.

2. TREATMENTS :

Strips in one direction :

4 varieties : V_1=ADT—1, V_2=ADT—2, V_3=ADT–10 and V_4=ADT—25.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16·8$, $N_2=33·6$, $N_3=50·4$ and $N_4=67·3$ Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : $K_0=0$ and $K_1=33·6$ Kg/ha.

N applied in 2 equal doses, half at planting as basal dressing and half 45 days after planting as top dressing. K_2O was applied as basal dressing just before final ploughing.

3. DESIGN :

(i) Strip-plot. (ii) (a) 4 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 6. (iv) (a) and (b) 2 1 m.×4·3 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 1960. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3553 Kg/ha. (ii) (a) 900·3 Kg/ha. (for V). (b) 501·9 Kg/ha. (for NK). (c) 369·9 Kg/ha. [for(V×NK)]. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	3488	3697	3619	3883	3888	3590	3840	3715
V_2	3457	3334	3221	3340	3293	3374	3284	3329
V_3	3539	3429	3722	3784	3533	3560	3643	3601
V_4	3513	3491	3478	3728	3629	3570	3565	3568
Mean	3499	3488	3510	3684	3586	3524	3583	3553
K_0	3337	3392	3489	3682	3718			
K_1	3661	3484	3531	3686	3454			

Crop :- Paddy (*Sornāvai*). **Ref :- T.N. 60(23).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy (c) N.A. (ii) Light clayey. (iii) 9.4.1960/10 to 12.5.1960. (iv) (a) 4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm.×13 cm. (e) 2. (v) 5604 Kg/ha. of G.L.+33·6 Kg/ha. of P_2O_5 as Super. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings and intercultivations one month after planting. (ix) 32 cm. (x) 26.7.1960 to 5.8.1960.

2. TREATMENTS :

Strips in one direction :

6 varieties : V_1=CO–29 or 6522, V_2=T.K.M.—3, V_3=CO–13, V_4=T.K.M.—6, V_5=T.K.M.—5 and V_6=CO–18.

Strips in perpendicular direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·3 Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

N applied as top dressing in two doses, half at planting and half 30 days after planting. K_2O applied as basal dressing before planting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 6 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 7·1 m.×1·9 m. (b) 6·6 m.×1·5 m. (v) 0·3 m.×0·2 m. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1958—1962 (modified in 1961). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2095 Kg/ha. (ii) (a) 397·7 Kg/ha. (for V). (b) 254·7 Kg/ha. (for NK). (c) 228·0 Kg/ha. (for V×NK). (iii) Only V effect is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	2262	2220	2385	2551	1936	1091	2137	2012	2074
N_1	2179	2275	2445	2482	2067	1260	2117	2115	2118
N_2	2380	2315	2501	2512	2065	1071	2110	2101	2041
N_3	2241	2134	2419	2611	1866	1064	2010	2172	2056
N_4	2391	2139	2499	2520	1929	1041	2085	2088	2087
Mean	2291	2217	2450	2535	1973	1105	2092	2098	2095
K_0	2289	2194	2467	2576	1964	1061			
K_1	2292	2239	2434	2495	1981	1150			

C.D. for V marginal means=189·4 Kg/ha.

Crop :- Paddy (*Navari*). **Ref :- T.N. 60(74), 61(33), 62(46).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'MV'.**

Object :—To study ihe effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M +168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy oam. (iii) 11.12.1960/19, 20.1.1961; 13.12.1961/10 to 12.1.1962; 27.11.1962/25 to 27.12.1962. (iv) (a) 2 ploughings with iron plough+a number of ploughings with country plough. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×13 cm. for 60(74); 23 cm.×10 cm. for others. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 8 cm., 3 cm., 12 cm. (x) 14 to 17.4·61; 17 to19.4.1962 and 5.5.1962; 17 to 30.4.1963.

2. TREATMENTS :

Strips in one direction :

4 varieties (early) : V_1=T.K.M.—5, V_2=CO—29, V_3=T.K.M.—6 and V_4=CO—18.

Strips in orthogonal direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$, $N_1=16·8$, $N_2=33·6$, $N_3=50·4$ and $N_4=67·2$ Kg/ha.

(2) 2 levels of K_2O as Pot. Sul : $K_0=0$ and $K_1=33·6$ Kg/ha.

N applied in two doses : $\frac{1}{2}$ as basal dressing at planting and $\frac{1}{2}$ as top dressing 30 days after planting. K_2O applied as basal dressing before planting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 4 s;rips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 6. (iv) (a) 6·6 m.×1·5 m. (b) 6·5 m.×1·3 m. (v) 5 cm.×12 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958 to 1962. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot variances are heterogeneous. The results of individual years are presented under 5. Results.

5. RESULTS :

60(74)

(i) 2726 Kg/ha. (ii) (a) 702·0 Kg/ha. (for V). (b) 363·4 Kg/ha. (for NK). (c) 282·2 Kg/ha. (for V×NK). (iii) Main effect of N and interaction V×N are highly significant. Main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	2239	2431	2528	2486	2552	2501	2393	2447
V_2	2243	2568	2884	3124	3230	2823	2797	2810
V_3	2318	2651	2818	2832	3127	2737	2762	2749
V_4	2569	3053	2931	3032	2908	2888	2909	2899
Mean	2342	2676	2790	2869	2954	2737	2715	2726
K_0	2371	2723	2752	2806	3034			
K_1	2313	2628	2829	2931	2875			

C.D. for V marginal means =273·2 Kg/ha.
C.D. for N marginal means =149·6 Kg/ha.
C.D. for V means at the same level of N means =460·5 Kg/ha.
C.D. for N means at the same level of V means =325·4 Kg/ha.

61(33)

(i) 1628 Kg/ha. (ii) (a) 492·5 Kg/ha. (for V). (b) 259·0 Kg/ha. (for NK), (c) 243·2 Kg/ha. (for V×NK). (iii) Main effect of V and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0		$_2$	N_3	N_4	K_0	K_1	Mean
V_1	1553	1795	1926	2118	2309	1960	1920	1940
V_2	1200	1382	1472	1593	1644	1484	1432	1458
V_3	1311	1482	1532	1644	1866	1545	1589	1567
V_4	1382	1472	1532	1704	1644	1573	1521	1547
Mean	1362	1533	1616	1765	1866	1641	1616	1628
K_0	1387	1543	1619	1800	1856			
K_1	1336	1523	1614	1729	1876			

C.D. for V marginal means=191·6 Kg/ha.
C.D. for N marginal means=106·6 Kg/ha.

62(46)

(i) 1661 Kg/ha. (ii) (a) 918·1 Kg/ha. (for V), (b) 387·1 Kg/ha. (for NK), (c) 302·0 Kg/ha. (for V×NK). (iii) Main effects of V and N are highly significant. Interaction V×N is significant.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	1459	1537	1822	1881	1802	1712	1688	1700
V_2	1180	1121	1206	1356	1339	1188	1293	1240
V_3	1807	2031	2399	2526	2551	2307	2217	2261
V_4	1399	1349	1446	1499	1516	1424	1460	
Mean	1461	1510	1717	1816	1802	1658	1664	1661
K_0	1413	1469	1693	1825	1889			
K_1	1510	1550	1741	1806	1715			

C.D. for V marginal means =357·2 Kg/ha.
C.D. for N marginal means =159·3 Kg/ha.
C.D. for V means at the same level of N means =417·1 Kg/ha.
C.D. for N means at the same level of V means =270·2 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(24), 61(31).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'MV'.**

Object :—To study the effect of different levels of N and K on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy for 60(24); Nil for 61(31). (b) Paddy. (c) 5604 Kg/ha. of G.L.+168 Kg/ha. of Super for 60(24); 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super 61(31). (ii) Light clayey for 60(24); Sandy loam for 63(31). (iii) 16.7.1960/23, 24.8.1960; 21.7.1961/31.8.1961 and 2.9.1961. (iv) (a) 2 to 4 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×13 cm. (e) 2. (v) 168 Kg/ha. of Super+5604 Kg/ha. of G.L. for 60(24); 168 Kg/ha. of Super+5605 Kg/ha. of G.M. for 61(31). (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 98 cm.; 86 cm. (x) 28.10.1960 to 28.1.1961; 4.12.1961 to 20.1.1962.

2. TREATMENTS :

Strips in one direction :

6 varieties : V_1=GEB 24 (medium). V_2=ADT—22 (medium), V_3=CO—25 (late), V_4=ASD—5 (medium), V_5=CO—5 (medium) and V_6=CO—19 (late).

Strips in orthogonal directions :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : N_0=0, N_1=16·8, N_2=33·6, N_3=50·4 and N_4=67·2 Kg/ha.

(2) 2 levels of K_2O Pot. Sul. : K_0=0 and K_1=33·6 Kg/ha.

N applied in two doses : $\frac{1}{2}$ at planting as basal dressing and another half 45 to 60 days after planting as top dressing. K_2O applied as basal dressing before planting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 6 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 4. (iv) (a) 7·1 m.×1·9 m. for 60(24), 6·6 m.×1·5 m. for 61(31). (b) 6·6 m.×1·5 m. for 60(24); 6·5 m.×1·3 m. for 61(31). (v) 25 cm.×20 cm. for 60(24); 6 cm.×12 cm. for 61(31). (vi) Yes.

4. GENERAL :

(i) Satisfactory for 60(24); Good for 61(31). (ii) Slight attack of stem borer for 60(24); No incidence for 61(31). (iii) Yield of grain. (iv) (a) 1958—1961. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous. The results of individual years are presented under 5. Results.

5. RESULTS :

60(24)

(i) 1271 Kg/ha. (ii) (a) 993·5 Kg/ha. (for V). (b) 450·0 Kg/ha. (for NK). (c) 291·2 Kg/ha. (for V×NK). (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_2	V_4	V_5	V_6	K_0	K_1	Mean
N_0	1035	1366	1768	1461	1130	1746	1279	1556	1418
N_1	1454	1278	1760	1468	1711	1690	1609	1512	1560
N_2	1028	1053	1447	1172	1077	1208	1118	1210	1164
N_3	915	1109	1408	1162	954	1563	1135	1236	1285
N_4	722	919	1313	1074	761	1377	1001	1054	1028
Mean	1031	1145	1539	1267	1127	1517	1228	1314	1271
K_0	987	1152	1482	1172	1086	1493			
K_1	1075	1138	1596	1363	1168	1541			

C.D. for N marginal means=188·6 Kg/ha.

61(31)

(i) 2897 Kg/ha. (ii) (a) 1596·1 Kg/ha. (for V). (b) 648·6 Kg/ha. (for NK). (c) 516·2 Kg/ha. (for V×NK). (iii) Main effects of V and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	K_0	K_1	Mean
N_0	3735	2583	3067	2308	2293	3340	2976	3133	3054
N_1	3872	3432	3644	2657	1913	3432	3270	3047	3158
N_2	3766	3280	3386	2186	1822	3249	3092	2804	2948
N_4	3735	3082	3052	2202	1564	2976	2708	2829	2769
N_5	3583	2703	2763	2141	1412	2748	2622	2495	2558
Mean	3738	3216	3212	2299	1801	3149	2933	2862	2897
K_0	3796	3213	3155	2363	1834	3140			
K_1	3680	3219	3110	2235	1767	3158			

C.D. for V marginal means=760·6 Kg/ha.

C.D. for N marginal means=271·7 Kg/ha.

Crop :- Paddy (*Sornavar*). **Ref : T.N. 61(32), 62(45).**

Site :- Rice Res. Stn. Tirurkuppam. **Tyye :- 'MV'.**

Object :—To study the response of different varieties of Paddy to different doses of Nitrogen and Potash.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Sandy loam. (iii) 28.4.1961/31.5.1961, 1.6.1961; 23.4.1962/28 to 30.5.1962. (iv) (a) 2 ploughings with iron plough. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×10 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 61 cm.; 40 cm. (x) 23,8.1961 to 9.9.1961; 18 to 23.8.1962.

2. TREATMENTS :

Strips in one direction :

4 early varieties : V_1=TKM—6, V_2=TKM—3, V_3=Co—13 and V_4=Co.—29.

Strips in orthogonal direction :

All combinations of (1) and (2)

(1) 5 levels of N as A/S : $N_0=0$. $N_1=16{\cdot}8$, $N_2=33{\cdot}6$, $N_3=50{\cdot}4$ and $N_4=67{\cdot}2$ Kg/ha.

(2) 2 levels of K_2O as Pot. Sul. : $K_0=0$ and $K_1=33{\cdot}6$ Kg/ha.

A/S applied as top dressing, half at planting and half 30 days after planting. K_2O applied as basal dressing before planting.

3. DESIGN :

(i) Strip-plot. (ii) (a) 4 strips in one direction and 10 strips in perpendicular direction. (b) N.A. (iii) 6. (iv) (a) 6·6 m.×1·5 m. (b) 6·5 m.×1·3 m. (v) 5 cm.×12 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—62 (modified in 1961). (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous. The results of individual years are presented under 5. Resluts.

5. RESULTS:

61(32)

(i) 2612 Kg/ha. (ii) (a) 1126·2 Kg/ha. (for V). (b) 363·5 Kg/ha. (for NK). (c) 444·8 Kg/ha. (for N×NK). (iii) Main effects of V, N, K and interaction N×K are significant. (iv) Av. yield of grain Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	3070	3005	2882	3231	3076	2990	3116	3053
V_2	2445	2511	2376	2326	2084	2222	2475	2348
V_3	2507	2283	2285	2504	2336	2314	2452	2383
V_4	2604	2808	2693	2761	2452	2682	2644	2663
Mean	2657	2652	2559	2706	2487	2552	2672	2612
K_0	2718	2511	2419	2649	2463			
K_1	2595	2792	2698	2762	2511			

C.D. for V marginal means =438·1 Kg/ha.
C.D. for N marginal means =149·6 Kg/ha.
C.D. for K marginal means =94·6 Kg/ha.
C.D. for body of N × K table=211·6 Kg/ha.

62(45)

(i) 2468 Kg/ha. (ii) (a) 509·1 Kg/ha. (for V). (b) 364·7 Kg/ha. (for NK). (c) 328·6 Kg/ha. (for V × NK). (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain Kg/ha.

	N_0	N_1	N_2	N_3	N_4	K_0	K_1	Mean
V_1	2410	2531	2733	2521	2854	2549	2670	2610
V_2	2037	2087	2148	2098	2229	2126	2114	2120
V_3	2461	2430	2592	2511	2531	2453	2557	2505
V_4	2531	2622	1537	2814	2713	2630	2646	2638
Mean	2360	2418	2496	2486	2582	2439	2497	2468
K_0	2385	2360	2486	2415	2551			
K_1	2335	2476	2506	2556	2612			

C.D. for V marginal means=198·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(25).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'C'.**

Object :— To study the effect of different seed rates, method of sowing and soaking of seed in water on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 50 Q/ha. of compost. (ii) Light clayey. (iii) 4.8.60. (iv) (a) 4 ploughings. (b) to (d) As per treatments. (e) N.A. (v) 12·6 tonne/ha. of compost (vi) ADT-22. (vii) Unirrigated. (vii) 2 weedings and 1 interculturing, (ix) 90 cm. (x) 30 and 31.1.1961.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 4 seed rates : S_1=22, S_2=44, S_3=66 and S_4=88 Kg/ha.
(2) 2 types of seeds : T_1=Soaked and T_2=Unsoaked.
(3) 3 methods of sowing : M_1=Broadcast, M_2=Behind the plough and M_3=Drilled.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 7·3 m.×3·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. (iv) (a) 1958 to 60. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1236 Kg/ha. (ii) 316·6 Kg/ha. (iii) Main effect of S is highly significant and interactions M×S and M×T are significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	T_1	T_2	Mean
S_1	875	1128	832	865	1024	945
S_2	1059	1361	1353	1175	1338	1257
S_3	1465	1171	1267	1262	1338	1299
S_4	1191	1586	1553	1423	1464	1443
Mean	1148	1311	1249	1181	1291	1236
T_1	1161	1145	1237			
T_2	1136	1477	1260			

C.D. for S marginal means =182·4 Kg/ha.
C.D. for body of M×S table=316·0 Kg/ha.
C.D. for body of M×T table=223·7 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(21), 62(56), 63(73), 64(72).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'C'.**

Object :— To study the effect of different spacings on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy for 60 (21) ; Nil for others. (b) Paddy. (c) 5604 Kg/ha. of G.L.+33·6 Kg/ha. of P_2O_5 as Super for 60 (21), 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 64 (72) ; N.A. for others. (ii) Light clayey for 62 (21) ; Sandy loam for others. (iii) 6.8.60 ; 7.8.62 ; 5.8.63 ; 24.7.64. (iv) (a) 3 ploughings for 60 (21) ; 2 ploughings with iron plough and a number of ploughings by country plough for others. (b) Dibbling. (c) 40 to 94 Kg/ha. (d) As per treatments. (e) 2 to 3. (v) 125 Kg/ha. of compost for 60 (21) ; 125 Q/ha. of F.YM. for 64 (72) ; 250 Q/ha. of F.Y.M. for others. (vi) ADT-22 (medium) for 60 (21) and 62 (56) ; BAM-3 (medium) for others. (vii) Unirrigated. (viii) 2 weedings. (ix) 81 cm. ; 90 cm. ; 100 cm. ; 98 cm. (x) 21.1.61 ; 24.1.63 ; 5.1.64 ; 25.12.64.

2. TREATMENTS :

3 spacings : S_1=15 cm.×8 cm., S_2=15 cm.×15 cm. and S_3=30 cm.×15 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. for 60 (21) 5·5 m.×9·1 cm. for others. (iii) 12. (iv) (a) and (b) 7·3 m.×3·1 m. for 60 (21) ; 5·5 m.×3·1 m. for others. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Slight attack of stem borer for 60 (21) ; No incdence for others. (iii) Grain yield. (iv) (a) 1960-64 (Experiment for 1961 failed). (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 1663 Kg/ha. (ii) 518·9 Kg/ha. (based on 94 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2	S_3
Av. yield	1697	1697	1596

Years	S_1	S_2	S_3	Sig.	G.M.	S.E./plot.
1960	1588	1510	1306	N.S.	1468	465·4
1962	1383	1658	1759	N.S.	1600	603·4
1963	2208	2326	1994	N.S.	2176	365·5
1964	1608	1295	1326	N.S.	1410	568·2
Mean	1697	1697	1596	N.S.	1663	518·9

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(40).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :— To find out the role of blue green Algae in fixing up atmospheric nitrogen and building up soli fertility.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 18 7.64/12.8.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) Nil (vi) ADT-3 (early). (vii) Irrigated. (viii) 1 weeding (ix) 25 cm. (x) 19.10.64.

2. TREATMENTS :

6 treatments : T_0=Control (no treatment), T_1=Partial soil sterilization (rabbing), T_2= Partial soil sterilization+Algale, T_3=Fertilizer mixture, T_4=Soil sterilization+fertilizer mixture+Algae and T_5=A/S to supply 20 Kg/ha. of N.

Fertiliser mixture includes Super, lime and Sodium molybdate applied at the rate of 20 Kg/ha. of P_2O_5 +1000 Kg/ha. of lime and 80 litres/ha. of Sodium Molybdate at the time of planting.

A/S applied half at planting and half at tillering. Soil sterilisation was achieved by rabbing the concerned plot using 454 Kg of Paddy straw in each plot (8 m.×6·0 m,) a month before planting. The concentrated Algae inoculum was applied during planting time at 25 Kg/ha. after mixing with fine sand.

3. DESIGN :

(i) R B.D (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 8·1 m.×6·0 m. (b) 7·8 m.×5·6 m. (v) Two rows all round. (vi) Yes.

4. GENERAL :

(i) Not satisfactory. (ii) Nil. (iii) Tiller counts, height of plant, pannicle length and grain yield. (iv) (a) 1964 contd. (b) No. (c) Nil. (v) (a) Coimbatore and Tirurkuppam. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1440 Kg/ha. (ii) 286·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1635	1239	1502	1485	1112	1664

Crop :- Paddy (*Taladi*). **Ref :- T.N. 64(41).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'CM'.**

Obcject :— To find out the role of blue green Algae in fixing up atmospheric nitrogen and building up soil fertility.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 26.9.64/20.11.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) Nil. (vi) Co.-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 44 cm (x) 1.4.65.

2. TREATMENTS :

Same as in expt. no. 64 (40) on page 118.

3 DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 8·1 m.×6·0 m. (b) 7·7 m.×5·3 m. (v) 2 rows all round. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Tiller counts, height of plant, pannicle length and grain yield. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) (a) Coimbatore and Tirurkuppam. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 3932 Kg/ha. (ii) 274·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3757	3915	3626	3940	4180	4171

Crop :- Paddy (*Kar*). **Ref :- T. N. 62(29).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'CM'.**

Object :—To compare the local method of Summer ploughing and broadcast of seed with the four method of puddling and transplanting on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loamy. (iii) 25.5.62/19.6.62. (iv) (a) to (e) As per treatments. (v) Nil. (vi) ASD-1. (vii) Irrigated. (viii) 2 hand weedings. (ix) 14 cm. (x) 18.9.62.

2. TREATMENTS :

3 methods of cultivation : C_1=Local method : Summer ploughing and broadcast of seed at 134 Kg/ha. with 224 Q/ha. of F.Y.M.+168 Kg/ha. of Super at last ploughing in the soil, C_2=Farm method : Puddling and transplanting seedlings (2 to 3 per hole) at a spacing of 20 cm.×15 cm.+168 Kg/ha. of Super as basal dressing with 5600 Kg/ha. of G.L. and C_3=Farm method : Puddling and transplanting in bulk at a spacing of 10 cm.×10 cm. with 5600 Kg/ha. of G.L.+168 Kg/ha. of Super as basal dressing.

168 Kg/ha. of A/S as top-dressing 30 days after sowing applied in all treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 20·0 m.×5·3 m. (b) 19·8 m.×5·2 m. (v) 8 cm.×8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957 to 1962. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4475 Kg/ha. (ii) 199·4 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	4258	4573	4595

C.D.=174 7 Kg/ha.

Crop :- Paddy (*Kar*). **Ref :- T.N. 60(7), 61(25).**

Site :- Rice Res. Stn., Ambasamudram. **Type :- 'CM'.**

Object :—To compare the local practice of summer ploughing and broadcasting of seed with the farm practice of puddling and transplanting on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy for 60(7) ; Nil for 61(25). (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of super. (ii) Clay loamy. (iii) 25.5.1960 for C_1 and 18.5.60/17.6.60 for C_2 ; 22.5.61 for C_1 and 22.5.61/20.6.1961 for C_2. (iv) (a) to (e) As per treatments. (v) Nil. (vi) ASD-1 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 15 cm., 15 cm. (x) 9 to 11.9.1960 ; 14 and 18.9.1961.

2. TREATMENTS :

2 methods of cultivation : C_1=Local method : Ploughing in summer and seed broadcast at 50 to 70 Kg/ha. with 224 Q/ha. of F.Y.M.+168 Kg/ha. of super at last ploughing in the soil+168 Kg/ha. of A/S as top dressing 30 days after sowing and C_2=Farm method : Puddling and transplanting seedlings (2 to 3 per hole) at a spacing of 20 cm.×15 cm. with 5600 Kg/ha. of G.L.+168 Kg/ha. of Super as basal dressing+168 Kg/ha. of A/S as top dressing 30 days after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 8. (iv) (a) 1/100th ha. for 60(7) ; 18·4 m.×5·3 m. for 61(25). (b) 1/100th ha. for 60(7); 18·3 m.×5·2 m. for 61(25). (v) Nil for 60(7) ; 8 cm.×8 cm. for 61(25). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of stem borer ; folidol sprayed for 60(7). No incidence for 61(25). (iii) Grain yield. (iv) (a) 1957—1962 (modified in 1960 and again in 1962). (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 4845 Kg/ha. (ii) 2227·4 Kg/ha. (based on 1 d.f. made up of Treatments×years interaction). (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	C_1	C_2
Av. yield	5159	4532

Years	C_1	C_2	Sig.	G.M.	S.E./plot
1960	4709	4869	N.S.	4789	352·2
1961	5609	4194	*	4902	252·6
Mean	5159	4532	N.S.	4845	787·5

Crop :- Paddy (*Kar*). **Ref :- T.N. 63(17), 64(20).**

Site :- Deep Water Rice Res. Stn., Talainagar. **Type :- 'CM'.**

Object :—To study the effect of different dates of planting, spacings and levels of P on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy for 63(17) ; Nil for 64(20). (b) Paddy. (c) N.A. (ii) Clayey loam. (iii) As per treatments. (iv) (a) 3 puddlings with iron plough. (b) Transplanting. (c) 45 Kg/ha. (d) As per treatments. (e) 4. (v) 112 Kg/ha. of F.Y.M.+168 Kg/ha. of A/S. (vi) TNR-1 (early). (vii) Irrigated. (viii) Weeding, gap filling and rectification of bunds. (ix) 192 cm., 76 cm. (x) 25.11.1963 to 11.12.1968 ; 24 and 29.11.1964.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 dates of sowing/planting : D_1=2nd week of July/2nd week of August and D_2=Last week of July/Last week of August.

(2) 3 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×10 cm. and S_3=30 cm.×8 cm.

Sub-plot treatments :

3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

Super applied before planting as basal dressing.

3. DESIGN:

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·6 m.× 3·7 m. (b) 5·5 m.×3·7 m. (v) 4 cm.×4 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1963-1964. (b) Yes. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Both the error variances are homogeneous and main-plot and sub-plot Treatments×years interactions are present.

5. RESULTS :

(i) 2050 Kg/ha. (ii) (a) 2452·4 Kg/ha. (based on 5 d.f. made up of Treatments×years interation). (b) 217·8 Kg/ha. (based on 8 d.f. made up of various components of Treatments×years interaction). (iii) Main effect of P alone is highly significant. (iv) Av. yield of grain in Kg/ha.

C.D. for P marginal=102·6 Kg/ha.

Years	S_1	S_2	S_3	Sig.	D_1	D_2	Sig.
1963	2039	1886	2083	**	2971	1034	**
1964	2106	2045	2141	**	2155	2040	**
Mean	2072	1966	2112	N.S.	2563	1537	N.S.

Years	P_0	P_1	P_2	Sig.	G.M.	S.E. Main-plot	Sub-plot
1963	1821	2147	2040	**	2003	116·4	117·7
1964	1897	2271	2124	*	2097	110·7	104·2
Mean	1859	2209	2082	**	2050	1226·2	108·9

Crop :- Paddy (*Nauarai*). **Ref :- T.N. 64(52).**

Site :- Rice Res. Stn., Tirwkuppam. **Type :- 'CM'.**

Object :—To find out the role of blue green algae in fixing up atmospheric nitrogen and building up soil fertility.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of super+168 Kg/ha. of A/S. (ii) Sandy loam. (iii) 17.12.64/21, 22.1.65. (iv) (a) 2 ploughings with iron and plough a number of ploughings with country plough and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 20 cm.×10 cm. (e) 2. (v) Nil. (vi) CO-18. (vii) Irrigated. (viii) 2 weedings. (ix)1 cm. (x) 22.3.65.

2. TREATMENTS :

6 treatments : T_0=Control, T_1=Partial soil sterilisation (rabbing), T_2=Partial soil sterilisation+algae, T_3=Fertiliser mixture+Sodium molybdate T_4=Fertiliser mixture+sodium molybdate+soil sterilisation+algae and T_5=20 Kg/ha. of N as A/S in two equal doses at planting and at tillering.

Fertiliser mixture contains super and lime 20 Kg/ha. of P_2O_5+1000 Kg/ha. of lime applied in the soil before transplanting and sodium molybdate at 0·3 Kg/ha. immediately after transplanting in the soil.
Soil sterilisation is burning of the soil upto plough depth resorted to under dry conditions of the field. Algale inoculum 2 Kg. was mixed with 6 Kg of sand or finally powdered soil to make it up 8 Kg. in total far an area of (8×8·1 m.×6·0 m.) and applied by broadcast uniformly throughout the plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 7·0 m.×5·8 m. (b) 6·9 m.×5·7 m. (v) 8 cm.×12 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller counts and grain yield. (iv) (a) 1964 only. (b) No. (c) Nil. (v) (a) Aduthurai. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 2219 Kg/ha. (ii) 211·1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	2104	1985	2191	2102	2339	2592

C.D.=318·2 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(51).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'CM'.**

Object :—To find out the role of blue green algae in fixing up atmospheric nitrogen and building up soil fertility.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 29.7.64/1.9.64. (iv) 2 ploughings with iron plough and a number of ploughing with country plough and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 23 cm.×15 cm. (e) 2. (v) Nil. (vi) B.A.M.—3. (vii) Irrigated. (viii) 2 weedings. (ix) 96 cm. (x) 20.12.64.

2. TREATMENTS : to 4. GENERAL :

Same as in Expt. no. 64(52) on page 121.

5. RESULTS :

(i) 1861 Kg/ha. (ii) 173·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1679	1631	1816	1877	2009	2156

C.D.=261·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 63 and 64(M.A.E).**

Site :- M.A.E. Centre, Melaswal. **Type :- 'CM'.**

Object :—Type VII : - To study the effect of different dates of sowing, number of seedlings per hole and manures on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy alluvium. (iii) As per treatments. (iv) (a) to (d) N.A. (e) As per treatments. (v) N.A. (vi) CO.—29. (vii) Irrigated. (viii) and (ix) N.A. (x) 11.11.63; N.A.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 3 dates of sowing : D_1=7.4.64; D_2=22.4.64 and D_3=7.5 64.

(2) 3 No. of seedlings/hole : R_1=2, R_2=4 and R_3=6.

(3) 3 spacings ; S_1=15 cm.×15 cm., S_2=20 cm.×20 cm. and S_3=25 cm.×25 cm.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : N_0=0 and N_1=44·8 Kg/ha.

(2) 2 levels of P_2O_5 as triple Super : P_0=0 and P_1=44·8 Kg/ha.

Dates of sowing for 1963 are N.A.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 9 main-plots/block; 3 blocks/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 1. (iv) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963—1964. (b) N.A. (c) Nil. (vi) Aduthurai. (vi) N.A. (vii) Nil.

5. RESULTS :

1963

(i) 1967 Kg/ha. (ii) (a) 682·2 Kg/ha. (b) 496·8 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	D_1	D_2	D_3	R_1	R_2	R_3	P_0	P_1	Mean
N_0	2219	2062	1469	1929	2112	1709	1852	1789	2109	1925	1908	1917
N_2	2298	2176	1578	2028	2264	1760	1953	1796	2303	2045	1989	2017
Mean	2258	2119	1523	1978	2188	1734	1902	1792	2206	1985	1949	1967
P_0	2251	2119	1585	1934	2195	1827	1960	1730	2266			
P_1	2265	2119	1462	2023	2182	1642	1845	1855	2147			
R_1	2093	2249	1365	1817	2207	1683						
R_2	2274	1830	1272	1821	1996	1560						
R_3	2408	2279	1932	2297	2362	1960						
D_1	2412	2007	1516									
D_2	2490	2298	1777									
D_4	1873	2052	1277									

C.D, for S marginal means=393·5 Kg/ha.

1964

(i) 2006 Kg/ha. (ii) (a) 817·4 Kg/ha. (b) 270·0 Kg/ha. (iii) Main effects of D, N, P and interaction P×S×N are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	R_1	R_2	R_3	S_1	S_2	S_3	N_0	N_1	Mean
P_0	2156	2396	1133	1840	1858	1987	2165	1910	1610	1763	2026	1895
P_1	2382	2650	1322	2043	2006	2304	2445	2111	1797	1945	2290	2128
Mean	2269	2523	1227	1941	1932	2146	2305	2011	1704	1854	2158	2006
N_0	2103	2356	1104	1807	1731	2025	2186	1829	1548			
N_1	2435	2690	1350	2076	2133	2266	2424	2192	1859			
S_1	2557	2998	1359	2267	1885	2762						
S_2	2350	2578	1104	1850	2106	2076						
S_3	1899	1992	1219	1707	1805	1599						
R_1	2216	2205	1403									
R_2	2208	2549	1039									
R_3	2382	2815	1240									

C.D. for D marginal means =471·4 Kg/ha.
C.D. for N or P marginal means=104·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 64(M.A.E).**

Site :- M.A.E. Centre, Aduthurai. **Type :- 'CMV'.**

Object : –Type XIII :—To study the effect of N, P, K levels with different dates of sowing on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c)N.A. (ii) Coastal alluvium. (iii) As per treatments. (iv) and (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) to (x) Nil.

2, TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 3 dates of sowing : D_1=2 weeks before the normal date; D_2=Normal and D_3=2 weeks after the normal date of sowing.

(2) 3 varieties : V_1=A.D.T.—27, V_2=IJ –914 and V_3=IJ—2917,

(3) 3 levels of N : N_0=0, N_1=50 and N_2=100 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=70 Kg/ha.

(2) 2 levels of K_2O : K_0=0 and K_1=50 Kg/ha.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 3 blocks/replication; 9 plots/block; 4 sub-plots/main-plot. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964 only. (b) and (c) Nil. (v) Melasval, Bhavanisagar. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3688 Kg/ha. (ii) (a) 863·9 Kg/ha. (b) 498·7 Kg/ha. (iii) Main effect of V is highly significant and main effect of D is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_0	V_1	V_2	N_0	N_1	N_2	P_0	P_1	Mean
K_1	3443	4174	3336	3227	4141	3586	3886	3527	3590	3647	3655	3655
K_2	3492	4242	3444	3231	4284	3662	3797	3580	3800	3731	3721	3726
Mean	3468	4208	3390	3229	4212	3624	3842	3554	3670	3689	3688	3688
P_9	3423	4153	3491	3203	4196	3668	3881	3689	3548			
P_1	3512	4264	3289	3255	4228	3581	3853	3419	3792			
N_0	3245	4541	3739	3122	4597	3806						
N_1	3672	3867	3122	3217	4041	3404						
N_2	3486	4216	3308	3348	3999	3663						
V_1	3048	4054	2585									
V_2	3934	4663	4039									
V_3	3421	3907	3545									

C.D. for V or D marginal means=500·0 Kg/ha.

Crop :- Paddy (*Kharif*).

Ref :- T.N. 64 & 65(M.A.E).

Site :- M.A.E. Centre, Bhawanisagar.

Type -- 'CMV'.

Object :—Type XIII : To study the effect of N, P, K levels with different dates sowing on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c)N.A. (ii) (a) Red loam. (b) N.A. (iii) As per treatments. (iv) and (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 3 varieties : V_1=T.K.M.–6, V_2=IJ—2410 and V_3=IJ—2414.

(2) 3 levels of N : $N_0=0$, $N_1=50$ and $N_2=100$ Kg/ha.

(3) 3 dates of sowing : $D_1=2$ weeks before normal date of sowing, D_2=Normal date and $D_3=2$ weeks after normal date of sowing.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 : $P_0=0$ and $P_2=70$ Kg/ha.

(2) 2 levels of K_2O : $K_0=0$ and $K_1=50$ Kg/ha.

Varieties for 65 are V_1=T.K.M.–6, V_2=Cul. No. 2410 and V_3=Cul. No. 2914.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/block; 3 blocks/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—66. (b) N.A. (c) Nil. (v) Aduthurai, Melaseval. (b) Nil. (vi) Nil. (vii) Two way tables for 65 are N.A.

5. RESULTS :

1964

(i) 2792 Kg/ha. (ii) (a) 769·8 Kg/ha. (b) 515·8 Kg/ha. (iii) Main effect of N is highly significant. Interaction D×V is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	Mean
K_0	2833	3073	2877	2995	3124	2264	2634	2993	3155	2568	3288	2928
K_1	2817	3093	3142	2986	3330	2737	2667	3151	3234	2775	3259	3017
Mean	2625	3083	3009	2990	3227	2700	2651	3072	3194	2671	3274	2972
P_0	2522	2762	2730	2767	2978	2269	2347	2774	2894			
P_1	3128	3404	3289	3214	3475	3133	2955	3371	3495			
N_0	2674	2700	2578	2511	2819	2621						
N_1	2887	3092	3238	3057	3318	2842						
N_2	2915	3457	3212	3403	3543	2638						
V_1	3016	3300	2655									
V_2	2917	2819	3944									
V_3	2543	3130	2429									

C.D. for N marginal means=443·9 Kg/ha.
C.D. for body of D×V table=769·0 Kg/ha.

1965

(i) 1952 Kg/ha. (ii) N.A. (iii) V effect is significant. D,P and N effects are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2
Marginal means	1931	2162	1763	1295	2244	2317	1664	1936	2256
	P_0	P_1	K_0	K_1					
	1841	2063	1955	1949					

C.D. for D, N or V means=63·0 Kg/ha.
C.D. for P means =32·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- T.N. 64(MAE).**
Siie :- M.A.E. Centre, Melasval. **Type :- 'CMV'.**

Object :— Type XIII : To study the effect of N, P, K levels with different dates of sowing on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Costal alluvium. (iii) As per treatments. (iv) and (v) N.A. (vi) 110 days. (vii) Irrigated. (viii) to (x) N.A.

Main-plot treatments :

All combinations of (1), (2) and (3).

(1) 3 varieties : V_1=Adt—27, V_2=IJ—2410 and V_3=IJ—2914.

(2) 3 levels of N : N_0=0, N_1=50 and N_2=100 Kg/ha.

(3) 3 dates of sowing : D_1=2 weeks before normal date of sowing, D_2=Normal date and D_3=2 weeks after normal date of sowing.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 2 levels of P_3O_5 : P_0=0 and P_1=70 Kg/ha.

(2) 2 levels of K_2O : K_0=0 and K_1=50 Kg/ha.

3 DESIGN :

(i) Split-plot confd. (ii) (a) 9 main-plots/block, 3 blocks/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964 only. (b) and (c) Nil. (v) (a) Aduthurai, and Bhavanesagar. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1421 Kg/ha. (ii) (a) 336·5 Kg/ha. (b) 172·8 Kg/ha. (iii) Main effects of D, V, P and K are highly significant. Interaction D×V is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	Mean
K_0	1583	1555	903	1492	1073	1477	1362	1296	1384	1287	1407	1347
K_1	1823	1668	993	1670	1173	1641	1421	1548	1515	1398	1591	1494
Mean	1703	1612	948	1581	1123	1559	1321	1422	1449	1342	1499	1421
P_0	1603	1554	870	1484	1064	1480	1278	1358	1391			
P_1	1802	1669	1026	1678	1182	1638	1504	1485	1508			
N_0	1585	1608	980	1498	1107	1569						
N_1	1769	1584	913	1647	1109	1510						
N_2	1754	1643	951	1597	1153	1597						
V_1	1697	1700	1346									
V_2	1646	1436	287									
V_3	1766	1698	1212									

C.D. for D or V means =194·0 Kg/ha.
C.D. for P or K means =67·0 Kg/ha.
C.D. for body of D×V table=336·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(93).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To study the control measures against the Paddy stem-borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 31.7.64/20.9.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 15 m.. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) Co-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 8.2.64.

2. TREATMENTS :

9 insecdicidal treatments: T_9=Control(no treatment).T_1=Endrin (grl.) 0·2 Kg/ha., T_2=Hepkehlor (grl.) 2·2 Kg/ha., T_3=Endrin (spray) o·1%, T_4=Parathion (spracy) 0·1%, T_5=B.H.C. (soil application 0·1%, T_6=Thiometon (soil apples) 0·1%, T_7=Methyl Demeton. 0·1% T_8=Dimethoate 0·1%

T_1 and T_2 applied as basal dressing in the soil just before planting. T_3 and T_4 were given as brood emergence sprays in 4 rounds covering two broods at two sprayings for each brood one spraying on the day of noticing the brood emergence and the 2nd 7 days after it at 900 litres/ha. T_5 to T_8 applied as soil application in the field with 2 to 3 inches of standing water on noticing the brood emergence. this was done in two rounds in order to cover two brood emergence at 900 liters/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 4.6 m.×27·5 m. (iii) 4. (iv) (a) and (b) 4·6 m.×3·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of stem-borer. (iii) Infestation data and grain yield. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 6343 Kg/ha. (ii) 322·9 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_3
Av. yield	5454	6351	5983	7041	6422	6871	6351	6961	5651

C.D.=471·2 Kg/ha.

(i) 12·7° (ii) 0·7° (iii) Treatment differences are highly significant. (iv) Main percentage of stem borer infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	16·5	11·8	12·7	12·3	11·6	12·6	11·7	12·6	12·4

C.D.=1·1 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(94).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To study the coutrol measures for preventing Spirogyra in Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 11.9.64/26.10.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) ADT-10 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 47 cm. (x) 4.3.65.

2. TREATMENTS :

All combinations of (1) and (2) with a control.

(1) 2 chemicals : A_1=Copper sulphat eand A_2=Sodium Arsenic.

(2) 3 concentrations : B_1=5, B_2=10, B_3=15 gm/cum.

Treatments applied as soil application once 20 days after planting in the standing water in the field.

3. DFSIGN ;

(i) Fact. in R.B.D. (ii) (a) 7. (b) 7·0 m.×29·9 m. (iii) 4. (iv) (a) 7·0 m.×4·3 m. (b) 6·6 m.×3·5 m. (v) Two rows alround. (vi) Yes.

4. GENERAL

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1964-contd. (Expt. for 1965 N.A.) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 5448 Kg/ha. (ii) 355·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=5447 Kg/ha.

	B_1	B_2	B_3	Mean
A_1	5393	5121	5469	5328
A_2	5790	5371	5540	5567
Mean	5592	5246	5505	5448

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(70).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the efficacy of fungicides in controlling blast disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 26.8.63/30.9.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+336 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) ADT-10 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 129 cm. (x) 30.1.64.

2. TREATMENTS :

9 fungicidal treatments: T_0=Control, T_1=Coppesan 0·5%, T_2=Cop-Chloran. 0·25%, T_3=Tytolan 0·25%, T_4=Parry Cop. 0·25%, T_5=Dithane-Z-78. 0·2%, T_6=Ziram. 0·2%, T_7=Flit—406. 0·25% and T_8=Bordaux mixture ·1%.

The treatments applied as foliar sprays in three rounds. The first spray was given on noticing the incidence of disease and then repeated thrice at fortnigtly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 6·1 m.×24·4 m. (iii) 4. (iv) (a) 6·1 m.×6·1 m. (b) 5·3 m.×5·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible. (iii) Leaf and neck infection data and grain yield. (iv) (a) 1963 (2 seasons). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2037 Kg/ha. (ii) 131·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1998	2013	2057	2080	2046	2054	2046	2017	2025

(i) 13·7° (ii) 1·5° (iii) Treatment differences are highly significant. (iv) Mean percentage of blast leaf infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	17·4	12·5	15·1	13·7	12·9	13·6	13·0	11·6	13·2

C.D.=2·3 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(78).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the efficacy of fungicides in controlling blast disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 11.9.64/26.10.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+33·6 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—10 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 47 cm. (x) 4.3.65.

2. TREATMENTS :

9 fungicidal treatments : T_0=Control, T_1=Frytolan 0·25%; T_2=Flit 0·25%, T_3=Parry cop 0·25%, T_3=Coppesan 0·5%, T_5=Ziram 0·2%, T_6=Sulphur 22·4 Kg/ha. as dust, T_7=Cerasan lime mixture 22·4 Kg/ha. as dust and T_3=Bordeaux mixture 1%.

T_6 and T_7 applied as dusts. All other treatments as sprays at 900 Litres/ha. All treatments applied in three rounds at fortnightly intervals starting from the time when the incidence was first noticed.

3. DESIGN .

(i) R.B.D. (ii) (a) 9. (b) 6·1 m.×18·3 m. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 5·6 m.×3·8 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Satifactory. (ii) Incidence of blast. (iii) Leaf and neck infection data and grain yield. (iv) (a) 1964—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4986 Kg/ha. (ii) 465·4 Kg/ha. (iii) Treatmeat differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	4713	4963	5097	4730	4753	5161	5161	5155	5137

(i) 17·5°. (ii) 0·5°. (iii) Treatment differences are highly significant. (iv) Mean percentage of blast infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean aagle	19·71	17·45	17·53	17·55	17·31	17·30	17·95	15·48	17·38

C.D.=0·8 degrees.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 62(33).**
Site :- Reg. Res. Stn., Aduthurai. **Type:- 'D'.**

Object :—To study the effect of different fungicides in the control of blast disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Clay loam. (iii) 2.11.62/30.11.62. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha, (d) Irregular. (e) 2. (v) 5605 Kg/ha. of G.M.+224 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—23 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 13.3.63.

2. TREATMENTS :

5 fungicides : T_0=Control (no treatment), T_1=Bordeaux mixture 1%, T_2=Fytolan 0·25%, T_3=Cupramar 0·3% and T_4=Dithane Z-78 0·2%.

Treatments applied in three rounds as foliar spray at 900 litres/ha. at fortnightly intervals starting from noticing the incidence of disease.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) 7·3 m.×4·9 m. (b) 6·1 m.×3·7 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of blast. (iii) Grain yield ; data of grain; leaf and neck infection. (iv) to (vii) Nil.

5. RESULTS :

(i) 918 Kg/ha. (ii) 211·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	789	879	1040	978	906

(i) 25·50 degrees. (ii) 3·2 degrees. (iii) Treatment differences are highly significant. (iv) Means of % of blast leaf infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	31·48	25·96	24·00	23·69	22·38

C.D.=4·29 degress.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 63(71).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the efficacy of fungicides in controlling blast disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 17.10.63/1.12.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+336 Kg/ha. of A/S+16·8 Kg/ha. of Super. (vi) A.D.T.—8 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 109 cm. (x) 30.3.64.

2. TREATMENTS : to 4. GENERAL

Same as in Expt. No. 63(70) on page 129.

5. RESULTS :

(i) 1946 Kg/ha. (ii) 91·1 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1507	2196	1974	2043	1948	1827	1895	1804	2318

C.D.=132·9

(i) 8·52° . (ii) 0·74°. (iii) Treatment differences are highly significant. (iv) Mean percentage of blast infection in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	11·13	8·03	7·91	8·32	9·21	7·91	7·87	8·39	7·91

C.D.=1·1 degrees.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 63(39).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To find out a schedule of treatments for the control of fresh water Crabs.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 13.11.63/13.12.63. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.S.D.—5 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 74 cm. (x) 11.4.64.

2. TREATMENTS :

7 pesticidal treatments : T_0=Control (No treatment), T_1=Parathion 0·05%, T_2=Trithion 0·06%, T_3=Carbaryl 0·1%, T_4=Endrin 0·03%, T_5=Dylox 0·1% and T_6=Methyl Deinetor 0·1%.

Treatments applied as sprays in 2 rounds within 10 days after planting at 2250 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 4·9 m. × 34·2 m. (iii) 4. (a) 4·9 m. × 4·9 m. (b) 4·1 m. × 4·4 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of fresh water crabs. (iii) Percentage of mortality, grain and straw yields. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Replication wise data N.A.

5. RESULTS :

(i) 2977 Kg/ha. (ii) 381·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2681	3148	3107	3107	3121	2914	2763

Crop :- Paddy (*Taladi*). **Ref :- T.N. 64(38).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To find out a schedule of treatments for the control of fresh water crabs.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 22.4.64/17.11.64. (iv) (a) 3 ploughings with iron plough+levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (vi) ADT-8 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 44 cm. (x) 11.3.65.

2. TREATMENTS :

7 pesticidal treatments : T_0=Control (no treatment), T_1=Parathion 0·1%, T_2=Trithion 0·1%, T_3=Sevin 0·1%, T_4=Endrin 0·03%, T_5=Dipteren 0·1%, and T_6=Methyl Demeton 0·1%.
Treatments applied as sprays in two rounds within 10 days after planting at 2250 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 3·1 m.×21·4 m. (iii) 6. (iv) (a) 3·1 m.×3·1 m. (b) 2·9 m.×2·8 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of fresh water crabs. (iii) Mortality counts and grain yield. (iv) (a) 1963 contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Replication wise data is N.A.

5. RESULTS :

(i) 2088 Kg/ha. (ii) 308·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1452	2418	1946	1998	2090	2378	2337

C.D.=363·9 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(38).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To find out a schedule of treatments for the control of fresh water crabs.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 26.7.63/8.9.63. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×13 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha of Super. (vi) CO-25(late). (vii) Irrigated. (viii) 2 weedings. (ix) 136 cm. (x) 29.1.64.

2. TREATMENTS :

6 pesticidal treatments : T_0=Control (no treatment), T_1=Parathion 0·1%, T_2=Trithion 0·1%, T_3= Thiometon (Ekatin) 0·1%. T_4=Carboryl (Sevin) 0·1% and T_5=Endrin 0·03%.

Treatments applied in two rounds as sprays within 10 days after planting at 2250 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×5·5 m. (b) 5·3 m.×5·1 m. (x) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of fresh water crabs. (iii) Percentage of mortality, grain and straw yields. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3125 Kg/ha. (ii) 109·9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	2803	3434	2972	3161	3197	3181

C.D.=165·8 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(39).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To find out a schedule of treatments for the control of fresh water crabs.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 30.7.64/21.9.64. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) CO-25(late). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 2.2.65.

2. TREATMENTS :

7 pesticidal treatments : T_0=Control (no pesticide), T_1=Parathion 0·1%, T_2=Trithion 0·1%, T_3= Carboryl 0·01%, T_4=Endrin 0·03%, T_5=Dylox 0·01% and T_6=Methyl Demeton 0·01%.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 32·0 m.×4·6 m. (iii) 4. (iv) (a) 4·6 m.×4·6 m. (b) 4·3 m.×4·4 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of fresh water crabs. (iii) Percentage of mortality and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4162 Kg/ha. (ii) 530·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	3713	4499	4060	4355	3962	4256	4289

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(91).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of insecticides against Paddy gallfly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 12.7.64/7.8.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) ADT-26 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 24 cm. (x) 17.10.64.

2. TREATMENTS :

Same as in expt. no. 63 (68) on page 135.
All treatments were given as foliar sprays in one round in the green mature stage of the crop on noticing the pest incidence at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) 6·1 m.×43·6 m. (iii) 4. (iv) (a) 6·2 m.×4·0 m. (b) 5·6 m.×3·5 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of gallfly. (iii) Fulgorid counts and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

1. Yield.
(i) 3328 Kg/ha. (ii) 453·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield	2972	3061	3074	3130	3554	3522	3478	3573	3219	3567	3453

2. Incidence.
(i) 65·8°. (ii) 2·7°. (iii) Treatment differences are highly significant. (iv) Mean percentage of mortality of Fulgorid in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_3	T_9	T_{10}
Mean angle	0·0	74·5	71·2	74·3	74·9	72·5	67·7	75·0	71·5	72·5	69·8

C.D.=3·9 degrees

Crop :- Paddy (*Taladi*). **Ref :- T.N. 62(34).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To study the effect of different insecticides in the control of Paddy gall fly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 2.11.62/29.11.62. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (vi) Co-30 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 20.3.63.

2. TREATMENTS:

5 insecticides : T_0=Control (no treatment), T_1=B.H.C. 0·1%, T_2=D.D.T. 0·2%, T_3=Parathion, 0·2% and T_4=Endrin 0·0%.
Treatments are given as foliar sprays in 4 rounds at triweekly intervals. The firrt round was given within the 10th to 15th day after planting and than the other rounds were given at triweekly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 4·6 m. × 3·7 m. (b) 3·8 m. × 3·2 m. (v) Two rows alround, (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of gallfly. (iii) Infestation data and grain yield. (iv) to (vii) Nil.

5. RESULTS :

1. **Yield.**

(i) 3294 Kg/ha, (ii) 230·4 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3100	3133	3133	3559	3543

C.D. = 308·9 Kg/ha.

2. **Infestations.**

(i) 6·4°. (ii) 0·9°. (iii) Treatment differences are highly significant. (iv) Mean percentage of gallfly infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	8·1	7·0	5·8	5·4	5·7

C.D. = 1·3 degrees

Crop :- Paddy (*Taladi*). **Ref :- T.N. 63(68).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of insecticides against Paddy gallfly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 17.10.63/29.11.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M. + 168 Kg/ha. of A/S + 168 Kg/ha. of Super. (vi) Co-30 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 109 cm. (x) 9.4.64.

2. TREATMENTS :

11 insecticides : T_0=Control (no treatment), T_1=B.H.C. 0·1%, T_2=D.D.T. 0·2%, T_3=Endrin 0·0%, T_4=Parathion 0·1%, T_5=Trithion 0·1%, T_6=Malathion 0·1%, T_7=Thiometon 0·1%, T_8=Carbaryl 0·1%, T_9=Dylox 0·1% and T_{10}=Methyl Demeton 0·1%.

Treatments applied as foliar sprays in 4 rounds. The first round was given within 10th to 15th day after planting and then the other rounds were given at tri weekly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 6·1 m. × 4·9 m. (b) 5·6 m. × 4·1 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of gallfly. (iii) Infestation data, grain and straw yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5 RESULTS :

1. **Yield.**

(i) 2246 Kg/ha. (ii) 243·1 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield	1982	2144	2209	2338	2489	2424	1972	2058	2457	2349	2284

C.D. = 351·2 Kg/ha.

2. **Infestation.**

(i) 12·3°. (ii) 0·5°. (iii) Treatment differences are highly significant. (iv) Mean percentage of gallfly infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Mean angle	14·2	12·7	12·4	11·5	12·4	11·8	12·0	12·3	11·9	12·6	12·0

C.D.=0·7 degrees.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 64(77).**
Site :- Reg. Res. Stn., Aduthurai- **Type :- 'D'.**

Object :—To fix up a schedule of insecticidal treatments against Paddy gall fly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super. (ii) Clay loam. (iii) 22.9.64/16.11.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. ot Super. (vi) Co.—30 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 43 cm. (x) 13.3.65.

2. TREATMENTS :

11 Insectidal treatments : T_0=Control (no treatment), T_1=B.H.C. 0·1%, T_2=D.D.T. 0·2%, T_3=Endrin 0·03%, T_4=Parathion 0·05%, T_5=Trithion 0·06%, T_6=Malathion 0·01%, T_7= Ekiatin 0·1%, T_8=Sevin 0·1%, T_0=Metasystox 0·1% and T_{10}=Dipterex 0·1%.
Treatments applied as foliar sprays in 4 rounds. The first round was given within 10th to 15th day after planting and then the other rounds were given at tri-weekly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·1 m. (b) 5·6 m.×3·4 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of gall fly. (iii) Infestation data, grain and straw yield. (iv) (a) 1963—contd. (treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

1. Yield.

(i) 3423 Kg/ha. (ii) 237·5 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_0	T_{10}
Av. yield	2929	3504	3491	3557	3517	3504	3372	3504	3458	3405	3412

C.D.=343·1 Kg/ha.

2. Infestation.

(i) 9.8. (iii) 0·54. (iii) Treatment differences are highly significant. (iv) Mean percentage of gall-fly infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Mean angle	12·9	9·8	10·1	8·9	8·1	10·1	9·1	9·1	9·8	9·6	10·2

C.D.=0·78 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(67).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of treatments against Paddy gall fly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 29.7.63/4.9.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 135 cm. (x) 28.1.64.

2. TREATMENTS :

10 insecticidal treatments : T_0=Control (No treatment), T_1=B.H.C. 0·1%, T_2=D.D.T. 0·2%, T_3=Endrin 0·03%, T_4=Parathion 0·05%, T_5=Trithion 0·06%, T_6=Malathion 0·1%, T_7=Thiometon (Ekatin) 0·1%, T_8=Thiometon (Hexatin) 0·1% and T_9=Carbaryl (Sevin) 0·1%.

Treatments applied as foliar sprays in 4 rounds. The first round was given within 10th to 15th days after planting and then the other rounds were given at tri weekly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×4·6 m. (b) 5·0 m.×3·8 m. (v) 2 rows around. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of gal-fly. (iii) Infestation data, grain and straw yields. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2781 Kg/ha. (ii) 251·0 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_0
Av. yield	2454	2489	2512	3025	3060	2848	2643	2871	2723	3140

C.D.=364·2 Kg/ha.

(i) 12·18°. (ii) 1·98°. (iii) Treatment differences are highly significant. (iv) Mean per centage of gall-fly infestation in degrecs.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_3
Mean angle	14·70	12·12	11·54	11·57	11·80	11 83	12·14	1·195	12·47	11·70

C.D.=2·9

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(76).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of insecticidal treatments against Paddy gal fly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 30.7.60/13.9.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) CO-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 9.2.65.

2. TREATMENTS :

11 insecticidal treatments : T_0=Control (no treatment), T_1=B.H.C. 0·1%, T_2=D.D.T. 0·2%, T_3=Endrin 0·03%, T_4=Parathion 0·05%, T_5=Trithion 0·06%, T_6=Malathion 0·1%, T_7=Thiometon 0·1%, T_8=Carbaryl 0·1%, T_9=Methyl Demeton 0·1% and T_{10}=Dylox 0·1%.

Treatments applied as foliar sprays in 4 rounds at 900 litres/ha. starting within 10th to 15th days after planting and then the other rounds were given at tri-weekly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 5·6 m.×3·8 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :
(i) Good. (ii) Incidence of gal fly. (iii) Infestation data, grain and straw yields. (iv) (a) 1963-contd. (treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :
(i) 4342 Kg/ha. (ii) 397·0 Kg/ha. (iii) Treatments differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av.yield	4335	4783	4864	5132	4870	4695
Treatment	T_6	T_7	T_8	T_9	T_{10}	
Av. yield	4800	5091	4899	4771	5027	

C.D.=573·2 Kg/ha.

(i) 13·23. (ii) 0·65. (iii) Treatments differences are highly significant. (iv) Mean percentage of gall fly infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	15·47	12·49	12·79	12·76	12·33	13·90
Treatment	T_6	T_7	T_8	T_9	T_{10}	
Mean angle	13·48	12·62	13·53	12·95	13·24	

C.D.=0·95 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(92).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To find out suitable control measures against paddy mealy bug.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of super+168 Kg/ha. of A/S. (ii) (a) Clay loam. (iii) 26.7.64/27.8.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) CO-19 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 54 cm. (x) 17.1.65.

2. TREATMENTS :

6 insecticides : T_0=Control (no treatment), T_1=Parathion 0·1%, T_2=Metasyston 0·25%, T_3=Ekatin 0·25%, T_4=Sevin 0·25% and T_5=Dipterex 0·25%.

Treatments applied as foliar sprays in one round on noticing the pest incidence at the shoot blade stage of the crop at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 1·2 m.×7·3 m. (iii) 4. (iv) (a) and (b) 1·2 m.×1·2 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of mealy bug. (iii) Percentage of mortality and grain yield. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Replication wise data N.A.

5. RESULTS :

(i) 2439 Kg/ha. (ii) 617·3 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1345	3616	2943	2186	2439	2102

C.D.=930·3 Kg/ha.

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 63(30).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of treating Paddy seeds with different fungicides in the control of Helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 29.6.63/24.7.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 33 cm. (x) 4.10.63.

2. TREATMENTS :

6 fungicides for seed treatments : T_0=Control (No treatments), T_1=Agroson, T_2=Ceresan: T_3=Flit 406, T_4=E.S.D./A.M. and T_5=Merculine.

All fungicides were used at the rate of 1 gm. of fungicide per 454 gm. of seed. The seeds and fungicides were thoroughly mixed in a seed treating drum by rotating the drum about 300 times just prior to sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×6·1 m. (b) 8·7 m.×5·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of Helminthosporiose. (iii) Germination %, leaf and earhead infection and grain yield. (iv) (a) 1963—64 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4095 Kg/ha. (ii) 181·3 Kg/ha. (iii) Treatments differences are significant. (iv) Av yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3869	4116	4083	4351	4211	3940

C.D.=273·3 Kg/ha.

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(42).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of treating Paddy seeds with different fungicides in the control helminthosporiose disease.

1. BASAL CONDITIONS

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 13.7.64/5.8.64. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 17 cm. (x) 15.10.64.

2. TREATMENTS :

8 fungicidal treatments : T_0=Conlrol (no treatment), T_1=Helminthosporiose treatment—artificial creation disease, T_2=Agrosan. T_3=Ceresan, T_4=Flit. T_5=Thiram, T_6=Phygon and T_7= Ferresan.

All fungicides were used at the rate of 1 gm. of fungicide per 454 gm. of seed. The seeds and fungicides were thoroughly mixed in a seed treating drum by rotating the drum about 300 times just prior to sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×5·5 m. (b) 6·3 m.×5·0 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Helminthosporium disease. (iii) Germination %, grain and leaf infection and grain yield. (iv) (a) 1963—1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2811 Kg/ha. (ii) 208·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	2689	2645	2920	2784	3019	2868	2872	2693

Crop :- Paddy (*Taladi*). **Ref :- T.N. 62(35).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of different fungicides in the control of Helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 27.9.62/9.11.62. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) Irregular. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (vi) A D.T.—8 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 81 cm. (x) 8.3.63.

2. TREATMENTS :

5 fungicides : T_0=Control (no treatment), T_1=Fytolam 0·25%, T_2=Cupramar 0·3%, T_3=Dithane Z—78 0·2%, and T_4=Bordeaux mixture 1%.

Treatments applied as foliar sprays on noticing the disease as a first round and then repeated twice at tri-weekly intervals at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 9·1 m.×5·8 m. (b) 7·6 m.×4·3 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of helminthosporium. (iii) Infestation data and grain yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 2699 Kg/ha. (ii) 346·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4
Av. yield	2516	2725	2829	2903	2522

(i) 29·64°. (ii) 1·99°. (iii) Treatments differences are highly significant. (iv) Mean percentage of leaf infection in degrees.

Treatment:	T_0	T_1	T_2	T_3	T_4
Mean angle	36·80	26·73	28·38	28·00	28·27

C.D.=2·67 degrees.

Crop :- Paddy (*Taladi*). **Ref :- T.N. 63(23).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of treating Paddy seeds with different fungicides in the control of Helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 14.10.63/23.11.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—8 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 109 cm. (x) 6.4.64.

2. TREATMENTS :

Same as in Expt. no. 63(30) on page 139.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×6·1 m. (b) 8·4 m.×5·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of helminthosporiose. (iii) Germination %, leaf and earhead infection and grain yield. (iv) (a) 1963—1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1982 Kg/ha. (ii) 191·3 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_4	T_1	T_2	T_3	T_4	T_5
Av. yield	1727	1810	2015	2040	2277	2021

C.D.=228·4 Kg/ha.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 64(44).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of treating Paddy seeds with dfferent fungicides in the control of helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg./ha. of Super. (ii) Clay loam. (iii) 22.9.64/18.11.64. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) ADT-8 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 44 cm. (x) 13.3.65.

2. TREATMENTS :

Same as in expt. no. 64(42) on page 139.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×5·5 m. (b) 6·3 m.×4·7 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of helminthosporious. (iii) Germination %, leaf+grain infection and grain yield. (iv) (a) 1963-1964(modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3247 Kg/ha. (ii) 120·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	2939	3091	3464	3214	3548	3328	3260	3133

C.D.=178·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(31).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of treating paddy seeds with different fungicides in the control of helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) (a) Clay loam. (iii) 22.7.63/27.8.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) CO-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 143 cm. (x) 20.1.64.

2. TREATMENTS :

Same as in expt. no. 63(30) on page 139.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×4·6 m. (b) 5·3 m.×4·1 m. (v) 2. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of helminthosporiose. (iii) Germination %, leaf and earhead infection and grain yield. (iv) (a) 1963-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3334 Kg/ha. (ii) 264·3 Kg/ha. (iii) Treatments differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3050	3268	3293	3499	3423	3472

C.D.=398·4 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(43).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object : -To study the effect of treating Paddy seeds with different fungicides in the control of helminthosporiose disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 25.7.64/8.9.64. (iv) (a) 3 ploughings with iron plough and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) ADT-10(late). (vii) Irrigated. (viii) 2 weedings. (ix) 58 cm. (x) 3.2.65.

2. TREATMENTS :

Same as in expt. no. 64(42) on page 139.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 48·8 m.×6·1 m. (iii) 4. (iv) (a) 6·1 m.×6·1 m. (b) 5·3 m.×5·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Helminthosporium disease. (iii) Germination %, grain and leaf infection and grain yield. (iv) (a) 1963-64(modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4611 Kg/ha. (ii) 272·0 Kg/ha. (iii) Treatments differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	4351	4343	4621	4562	4933	4929	4463	4684

C.D.=400·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(44), 61(16), 62(22), 63(36), 64(31).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of soaking seeds in Sod. Bicarbonate solutions on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy for 60(44) ; G.M.-Paddy for 62(22) ; Nil for others. (b) G.M. for 62(22) ; Paddy for others. (c) Nil for 62(22) ; 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(44) ; 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Alluvial clay for 60(44) ; clay loam for others. (iii) 27.7.1960/16.9.1960 ; 5.8.1961/15.9.1961 ; 10.8.1962/12.9.1962 ; 31.7.1963/7.9.1963 ; 10.8.1964/21.9.1964. (iv) (a) 3 to 4 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×13 cm. for 60(44) and 61(16) ; 20 cm.×15 cm. for 72(22) ; 25 cm.×15 cm. for others. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(44) ; 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) CO-25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 75 cm., 70 cm., 108 cm., 136 cm., 53 cm. (x) 2.2.1961 ; 1.2.1962 ; 8.2.1963 ; 23.1.1964 ; 15.2.1965.

2. TREATMENTS :

5 strengths of Sod. Bicarbonate solutions : $T_0=0$ (No soaking), $T_1=2·8\%$, $T_2=4·8\%$, $T_3=6·8\%$ and $T_4=8·8\%$.

Seeds were soaked in above solutions for 48 hours before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 9·4 m.×4·7 m. for 62(22) ; 6·1 m.×3·8 m. for 63(36) ; 4·6 m.×3·1 m. for 64(31) ; 9·1 m.×3·8 m. for others. (b) 9·4 m.×4·7 m. for 62(22) ; 5·9 m.×3·6 m. for 63(36) ; 4·4 m.×2·8 m. for 64(31) ; 8·4 m.×3·7 m. for ythers. (v) Nil for 62(22) ; 8 cm.×12 cm. for 63(36) and 64(31) ; 12 cm.×6 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960 to 1964. (b) No. (c) Results of combined analysis given under 5. (v) (a) Ambasamudram, Coimbatore. Palur, Pattukottai and Tirurkuppam. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 3689 Kg/ha. (ii) 384·0 Kg/ha. (based on 116 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av yield	3589	3744	3664	3635	3813

Years	T_0	T_1	T_2	T_3	T_4	Significance	G.M.	S.E./plot
60(44)	5295	5372	5095	5436	5562	NS	5352	278·5
61(16)	4098	4436	4261	4019	4194	NS	4202	305·1
62(22)	2268	2397	2012	2568	2578	NS	2365	453·5
63(36)	1499	1737	1865	1543	1632	NS	1655	329·9
64(31)	4783	4776	5086	4607	5100	NS	4870	450·1
Polled	3589	3744	3664	3635	3813	NS	3689	384·0

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 62(23), 63(37), 64(32).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of soaking seeds in Sod. Bicarbonate solutions on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 13.10.1962/17.11.1962 ; 10.9.1963/18.10.1963 ; 22.9.1964/14.11.1964. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×13 cm. for 62(23) ; 25 cm.×15 cm. for others. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) CO-25(late). (vii) Irrigated. (viii) 2 weedings. (ix) 73 cm., 124 cm., 44 cm. (x) 19.3.1963 ; 19.2.1964 ; 16.3.1965.

2. TREATMENTS :

5 strengths of Sod. Bicarbonate solutions : T_0=No soaking, T_1=2·8%, T_2=4·8%, T_3=6·8% and T_4=8·8%. Seeds were soaked in above solutions for 48 hours before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 6·4 m.×4·7 m. for 62(23) ; 6·1 m.×3·8 m. for 63(37) ; 6·1 m.×4·6 m. for 64(32). (b) 6·4 m.×4·7 m. for 62(23) ; 5·9 m.×3·6 m. for 63(37) ; 5·8 m.×4·4 m. for 64(32). (v) Nil for 62(23) ; 8 cm.×13 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960 to 1964. (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) Ambasamudram, Coimbatore, Palur, Pattukottai and Tirurkuppam. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. The results of individual years are presented under 5. Results.

5. RESULTS :

62(23)

(i) 2381 Kg/ha. (ii) 1216·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2178	2580	1888	2608	2650

63(37)

(i) 4001 Kg/ha. (ii) 295·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3886	3985	4090	4123	3920

64 (32)

(i) 4646 Kg/ha. (ii) 215·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	4782	4624	4598	4653	4573

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(70), 61(29), 62(43), 63(49).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To evaluate the effect of chemical spraying on the incidence of attack by stemborer on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 61(29), and 62(43) ; 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Clay loam. (iii) 27.7.1960/16.9.60 ; 28.7.1961/3.9.1961 ; 5.8.1962/5.9.1962 ; 26.7.1963/1.9.1963. (iv) (a) 2 ploughings+levelling for 60(70) ; 3 ploughings for others. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 1 for 60(70) ; 2 for others. (v) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 61(29) and 62(43) ; 5600 Kg/ha. of G.L+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) CO-25(late). (vii) Irrigated. (viii) 2 weedings. (ix) 116 cm., 72 cm., 105 cm., 136 cm. (x) 6.2.1961 ; 7.2.1962 ; 18.2.1963; 24.1.1964.

2. TREATMENTS :

9 chemical sprayings : T_0=Control(no spraying), T_1=0·1%, T_2=0·075%, T_3=0·05%, T_4=0.025% of parathion, T_5=0·05%, T_6=0·04%, T_7=0·03% and=T_8=0·02% of Endrin.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 6 m.×6 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stemborer. (iii) Grain yield and infestation count. (iv) (a) 1955-1963(Expts. for 1955 to 1959 N.A.). (b) No. (c) Results of combined analysis is given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Data on infestation count for 63(49) is N.A. Error variances are heterogeneous and interaction of treatments×years is present for grain yield. Error variance are heterogeneous and interaction of Treatments×years is absent for Infestation counts.

5. RESULTS :

Grain yield

(i) 3051 Kg/ha. (ii) 590·3 Kglha. (based on 24 d.f. made up of Treatment×years interaction). (iii) Treatment differences are highly significant. (vi) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	2321	3488	3255	3073	2772	3484	3162	3036	2872

C.D.=352·9 Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	Sig.	G.M.	S.E./plot
60 (70)	2398	3522	3326	3540	3175	3652	3483	3586	3486	**	3352	416·5
61 (29)	9709	4688	4109	3752	3202	4513	3820	3671	3310	**	3753	525·9
62 (43)	1272	2307	2221	1803	1566	2199	2106	1736	1614	**	1869	189·1
68 (49)	2905	3435	3364	3197	3146	3572	3240	3202	3079	**	3238	380·8
Pooled	2321	3488	3255	3073	2772	3484	3162	3036	2872	**	3051	590·3

Infestation Count

60(70)

(i) 13·64 degrees. (ii) 1·31 degrees. (iii) Treatment differences are highly significant (iv) Mean percentage of white ear counts at harvest in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	16·8	11·7	12·0	12·6	14·5	12·2	13·1	14·3	15·7

C.D.=1·53 degrees.

61(29)

(i) 8·79 degrees. (ii) 0·97 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of white ear countsat harvest in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	12·3	7·0	7·6	8·5	9·5	7·1	7·9	9·0	10·2

C.D.=1·13 degrees.

62(43)

(i) 8·33 degrees. (ii) 0·63 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of white ear counts at harvest in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	12·4	6·1	7·7	7·7	8·4	6·6	7·0	9·5	10·3

C.D.=0·74 degrees.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 60(69), 61(21), 62(44), 63(50).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object : -To evaluate the effect of chemical spraying on the incidence of attack by stem borer on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(69) and 61(21) ; 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(44) ; N.A. for 63(50). (ii) Clay loam. (iii) 20.9.1960/19.11.1960 ; 18.9.1961/2.11.1961 ; 17.9.1962/3.11.1932 ; 3.10.1963/11.11.1963. (iv) (a) 2 ploughings+levelling for 30(39) and 61(21) ; 3 ploughings for others. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 1 for 60(39) and 31(21) ; 2 for others. (v) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(44) ; 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) CO-25(late) for 60(69) ; ADT-8(medium for others). (vii) Irrigated. (viii) 2 weedings. (ix) 115 cm., 49 cm., 83 cm., 115 cm. (x) 21.3.1961 ; 2.3.1962 ; 5.3.1963 ; 24.3.1964.

2. TREATMENTS :

9 chemical sprayings : T_0=Control (no spraying), T_1=0·1%, T_2=0·75%, T_3=0·05%, T_4=0·025% of parathion, T_5=0·05%, T_6=0·04%, T_7=0·03%, and V_8=0·02% of Endrin.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 6 m.×6 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. (iii) Yield of grain and infestation count. (iv) (a) 1955-1963 (Expts. for 1955 to 1959 are N.A.). (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) N.A.(b) Nil.(vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present in both the case i.e. grain yield and infestation count.

5. RESULTS:

Grain yield

(i) 2645 Kg/ha. (ii) 538 6 Kg/ha. (based on 24 d.f. made up of Treatment × years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	2054	3174	2835	2644	2450	2969	2739	2597	2340

C.D. = 320·9 Kg/ha.

Infestation Count

(i) 9·52 degrees. (ii) 0·81 degrees (based on 24 d.f. made up of Treatment × years interaction). (iii) Treatment differences are highly significant. (iv) Mean infestation count in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	12·10	7·77	8·79	9·05	10·31	8·93	8·82	9·52	10·41

C.D. = 1·18 degrees.

Yield in Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	Sig.	G.M.	Mean
60 (69)	1581	3326	2618	2298	5005	3141	2636	2458	1872	**	2437	276·1
61 (21)	2630	3980	3569	3281	3081	3741	3406	3273	3022	**	3331	317·5
62 (44)	2279	3147	3058	2954	2763	3161	3062	2900	2653	**	2886	151·6
63 (50)	1725	2242	2093	2043	1949	1831	1851	1758	1814	**	1924	387·8
Pooled	2054	3174	2835	2644	2450	2969	2739	2597	2340	**	2645	538·6

Infestion in degrees

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	Sig.	G.M.	Mean
60(69)	15.7	9·8	11·9	12·3	14·4	11·9	11·5	12·7	13·4	**	12·6	0·9
60(21)	12·1	6·9	7·1	7·8	10·4	6·7	7.4	7·6	10·7	**	8·6	1·0
62(44)	9·2	6·0	6·4	6·8	7·4	7·2	7·0	7·6	7·8	**	7·3	0·9
63(50)	11·5	8·3	9·7	9·4	9·1	10·0	9·4	9·9	9·6	**	9·7	1·4
Pooled	12·1	7·8	8·8	9·1	10·3	9·0	8·8	9·5	10·4	**	9.5	0·8

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 61(52), 62(81), 63(101).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object : —To evaluate the effect of chemical spraying on the incidence of stem borer on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 2.7.1961/29.7.1961 ; 23.6.1962/18.7.1962 ; 6.7.1963/ 7.8.1963. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 25 cm. (e) 2. (v) 5600 Kg/ha. of G.M. + 168 Kg/ha. of A/S + 168 Kg/ha. of Super. (vi) ADT-3(early). (vii) Irrigated. (viii) 2 weedings. (ix) 37 cm., 41 cm., 32 cm. (x) 16.10.1961 ; 6.10.1962 ; 3.10.1963.

2. TREATMENTS :

9 chemical sprayings : T_0=Control (no spraying), T_1=0·1%, T_2=0·075%, T_3=0·05%, T_4=0·025% of Parathion, T_5=0·05%, T_6=0·04%, T_7=0·03% and T_8=0.02% of Endrin.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 6 m.×6 m. (b) 5·5 m.×5·5 m. for 63(101) ; 6·3 m.× 6·3 m. for others. (v) 25 cm.×25 cm. for 63(101) ; 35 cm.×35 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stemborer. (iii) Yield of grain. (iv) (a) 1961—1963. (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 1891 Kg/ha. (ii) 324·4 Kg/ha. (based on 136 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1877	1795	1944	1863	1875	1935	1939	1960	1827

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	Sig.	G.M.	S.E./plot
61(52)	2077	2108	2032	2183	2083	2151	2281	2138	2275	N.S.	2147	305·1
62(81)	2097	1929	1986	1905	1866	1992	2015	1891	1698	N.S.	1932	322·6
63(101)	1457	1349	1814	1501	1675	1662	1521	1850	1507	N.S.	1593	338.2
Pooled	1877	1795	1944	1863	1875	1935	1939	1960	1827	N.S.	1891	324·4

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 61(58).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To evaluate the effect of mechanical removal of eggmasses on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 2.7.1961/28.7.61. (iv) (a) 3 ploughings. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 1. (v) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—3. (vii) Irrigated. (viii) 2 weedings. (ix) 37 cm. (x) 13.10.1961.

2. TREATMENTS : to 4. GENERAL :

Same as in Expt. No. 60(67) on page 148.

5. RESULTS :

(i) 2892 Kg/ha. (ii) 206·8 Kg/ha. (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2
Av. yield	2907	2877

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(67), 61(17).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To evaluate the effect of mechanical removal of Egg masses on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) (a) Clay loam. (iii) 25.7.1960/14.9.1960; 28.7.1961/11.9.1961. (iv) (a) 2 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 1. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) Co.—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 115 cm.; 72 cm. (x) 5.2.1961; 7.2.1962.

2. TREATMENTS :

2 eggmasses treatments : T_1=Eggmasses unremoved and T_2=Eggmasses removed mechanically as and when detected.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 6 m.×6 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL ;

(i) Good. (ii) Incidence of stem borer. (iii) Grain yield and infestation count. (iv) (a) 1955-1961 (Expts. for 1955 to 1959 are N.A.) (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent for grain yield while for infestation count, error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Grain yield

(i) 3010 Kg/ha. (ii) 422·6 Kg/ha. (based on 23 d.f. made up of pooled error and Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2
Av. yield	2946	3075

Infestation count

(i) 10·31 degrees. (ii) 1·14 degrees (based on 1 d.f. made up of Treatments×years interaction). (iii) Treatments difference is not significant. (iv) Mean infestation count in degrees.

Treatment :	T_1	T_2
Mean angle	11·65	8·97

Yield Kg/ha.

Years	T_1	T_2	Significance	G.M.	S.E./plot
60(67)	2567	2681	NS	2624	322·5
61(17)	3325	3468	NS	3397	518·9
Pooled	2946	3075	NS	3010	422·6

Infestation count in degrees

Years	T_1	T_2	Significance	G.M.	S.E./plot
60(67)	13·3	11·8	**	12·5	1·2
61(17)	10·0	6·2	**	8·1	1·2
Pooled	11·7	9·0	**	10·3	1·1

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 60(68), 61(18).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To evaluate the effect of mechanical removal of Eggmasses on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 20.9.1960/7.18.1960; 11.9.1961/3.11.1961. (iv) (a) 2 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 1. (v) 5600 Kg/ha. of G.L.+168 Kg/ha of A/S+168 Kg/ha. of Super. (vi) Co.—25 (late). for 60(68); A.D.T.—8 (medium) for 61(18). (vii) Irrigated. (viii) 2 weedings. (ix) 116 cm·; 20 cm. (x) 23.3.1961; 28.2.1962.

2. TREATMENTS :

2 eggmasses treatments : T_1=Eggmasses unremoved and T_2=Eggmasses removed mechanically as and when detected.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 6 m.×6 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. (iii) Infestation count and grain yield. (iv) (a) 1955—1961 (Expts. for 1955 to 1959 are N.A.) (b) No. (c) Results of combined analysis is given under 5 Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and interaction of Treatments×years is present in both the cases.

5. RESULTS :

Grain yield

(i) 2189 Kg/ha. (ii) 145·5 Kg/ha. (based on 1 d.f. made up of Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. yield of grain in Kg/ha·

Treatment :	T_1	T_2
Av. yield	2151	2227

Infestation count

(i) 9·90 degrees. (ii) 2·91 degrees (based on 1 d.f. made up of Treatment×years interaction). (iii) Treatment sdifference is not significant. (iv) Mean infestation count in degrees.

Treatment	T_1	T_2
Mean angle	10·96	8·84

Yield Kg/ha.

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	2355	2473	NS	2414	410·7
1061	1947	1981	NS	1964	163·2
Pooled	2151	2227	NS	2189	145·5

Infestation counts in degrees

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	11·2	9·9	**	10·5	0·7
1961	10·8	7·8	*	9·3	1·4
Pooled	11·0	8·8	N.S.	9·9	2·9

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(55), 64(66).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of treatments against pests and diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam for 63(55); sandy loam for 64(66). (iii) 29.7.63/3.9.63; 31.7.64/18.9.64. (iv) (a) 3 ploughiugs and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—10 (late). (vii) Irriggted. (viii) 2 weedings. (ix) 135 cm.; 52 cm. (x) 30.1.1964; 6.2.1965.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : $R_1=3$, $R_2=4$ and $R_3=5$ sprayings.

Sub-plot treatments :

8 mixtures for spraying : F_0=Control, F_1=B.H.C. 0·1%+Dithane 0·2%, F_2=D.D.T. 0·2%+Fytolan 0·25%, F_3=D.D.T. 0·2%+Parrycop 0·25%, F_4=D.D.T. 0·2%+Bordeaux mixture 1%, F_5=Parathion 0·05%+Fytolan 0·25%, F_6=Parathion 0·05% +Parrycop 0·25% and F_7=Parathion 0·05%+Coppesan 0·5%.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·6 m.× 2·4 m. for 63(65); 3·7 m.×3·1 m. for 64(66). (b) 4·1 m.×1·7 m. for 63(55); 3·2 m.×2·3 m. for 64(66). (v) 23 cm ×38 cm.

4. GENERAL :

(i) Good. (ii) Attack of gall fly. stem borer and helminthosporiose disease; control measures as per treatments. (iii) Leaf and grain infection and yield of grain. (iv) (a) 1963—1964. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Since the error variances for sub-plot treatments for yield of grain, stem borer infestation and leaf infection are heterogeneous, therefore individual years results for these characters are presented below.

5. RESULTS :

63(55)

Yield of grain

(i) 2381 Kg/ha. (ii) (a) 145·0 Kg/ha. (b) 136·3 Kg/ha. (iii) Main effect of F is significant. (iv) Av. yield of grain in Kg/ha.

F_0=2059 Kg/ha.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	2417	2431	2450	2127	2450	2410	2468	2393
R_2	2417	2446	2457	2367	2454	2421	2468	2433
R_3	2435	2457	2468	2435	2472	2435	2475	2454
Mean	2423	2445	2458	2310	2459	2422	2470	2427

C.D. for F marginal means=111·1 Kg/ha.

Gall fly infestation

(i) 12·2 degrees. (ii) (a) 0·8 degrees. (b) 0·6 degrees. (iii) Main effect of F is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

F_0=14·4.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	11·9	12·0	11·9	12·3	12·3	11·8	12·4	12·0
R_2	11·9	11·8	12·4	12·1	12·0	11·6	11·9	12·0
R_3	11·5	11·5	12·0	11·7	11·4	11·3	12·4	11·7
Mean	11·7	11·8	12·1	12·0	11·9	11·6	12·2	11·9

C.D. for F marginalmeans=0·46 degrees.

Stem borer infestation

(i) 12·2 degrees. (ii) (a) 1·2 degrees. (b) 1·1 degrees. (iii) Main effect of F is significant. (iv) Mean infestation of stem borer in degrees.

F_0=13·25 degrees.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	11·9	11·9	11·8	12·3	12·2	11·7	11·5	11·9
R_2	11·9	12·4	11·7	12·1	11·9	11·3	12·8	12·0
R_3	12·5	12·9	11·9	11·9	12·5	12·4	11·6	12·2
Mean	12·1	12·4	11·8	12·1	12·2	11·8	11·8	12·0

C.D. for F marginal means=0·90 degrees.

Helminthosporiose leaf infection

(i) 28·4 degrees. (ii) (a) 1·1 degrees. (b) 0·8 degrees. (iii) Main effect of F and R are highly significant. (iv) Mean percentage of Helminthosporiose leaf infection in degrees.

F_0=33·40 degrees.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	28·7	29·5	28·8	29·2	28·5	28·3	28·7	28·8
R_2	26·9	27·9	27·3	27·3	26·2	27·0	27·1	27·1
R_3	26·6	27·8	28·3	27·2	26·6	26·3	25·9	27·0
Mean	27·4	28·4	28·1	27·9	27·1	27·2	27·2	27·6

C.D. for R marginal means=0·68 degrees.
C.D. for F marginal means=0·66 degrees.

1964(66)

Yield of grain

(i) 3443 Kg/ha. (ii) (a) 336·2 Kg/ha. (b) 330·8 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

F_0=3013 Kg/ha.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	3434	3656	3656	3127	3656	3537	3742	3544
R_2	3220	3195	3451	3690	3468	3400	3742	3495
R_3	3468	3315	3178	3588	3793	3502	3468	3473
Mean	3474	3389	3428	3468	3639	3480	3651	3504

C.D. for F marginal means=269·9 Kg/ha.

Gall fly infestation

(i) 8·6 degrees. (ii) (a) 1·1 degrees. (b) 0·7 degrees. (iii) Main effect of F is highly significant. Interaction R×F is also highly significant. (iv) Mean percentage of gall fly infestation in degrees.

F_0=9·4 degrees.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	9·1	8·7	8·0	7·6	9·0	7·8	8·3	8·4
R_2	9·7	8·6	8·1	7·9	7·3	7·8	8·0	8·2
R_3	8·8	8·3	9·3	9·1	9·2	8·7	9·4	9·0
Mean	9·2	8·5	8·5	8·2	8·5	8·1	8·6	8·5

C.D. for F marginal means =0·7 degrees
C.D. for F means at the same level of R=1·0 degrees.
C.D. for R means at the same level of F =1·1 degrees.

Stem borer infestation

(i) 12·6 degrees. (ii) (a) 0·8 degrees. (b) 0·7 degrees. (iii) Main effect of R is significant and effect of F is highly significant. (iv) Mean percentage of stem borer infestation in degrees.

F_0=14·6 degrees.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	13·0	13·0	13·1	12·5	12·4	13·1	12·5	12·8
R_2	11·5	12·5	11·5	12·0	12·1	11·6	12.2	11·9
R_3	12·2	12·6	12·7	11·7	11·7	11·8	12·4	12·2
Mean	12·3	12·7	12·4	12·1	12·1	12·2	12·4	12·3

C.D. for R marginal means=0·5 degrees.

C.D. for F marginal means=0·5 degrees.

Helminthosporiose leaf infection

(i) 33·9 degrees. (ii) (a) 2·0 degrees. (b) 1·6 degrees. (iii) Main effect of F is highly significant. Main effect of R and interaction R×F is significant.

F_0=42·0 degrees.

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	32·2	33·6	33·9	33·4	34·2	32·1	34·0	33·3
R_2	33·9	32·6	34·6	34·5	33·9	31·7	31·8	33·3
R_3	32·1	32·6	34·0	32·0	28·8	30·0	31·0	31·5
Mean	32·7	32·9	34·2	33.3	32·3	31·3	32·3	32·7

C.D. for R marginal means =1·3 degrees.
C.D. for F marginal means =1·3 degrees.
C.D. for R means at the same level of F means=2·5 degress.
C.D. for F means at the same level of R means=2·3 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(65), 61(19), 62(24), 63(48).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of different times of sowing on the incidence of Paddy stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) As per treatments. (iv) (a) 2 to 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 2 for 63(48); 1 for others. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) Co—25 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 116 cm.; 72 cm.; 105 cm.; 136 cm. (x) 5, 19.2.1961; 6, 22.2.1962; 8, 18.2.1963; 25.1.1964; 5.2.1964.

2. TREATMENTS :

2 times of sowing : T_1=Early sowing and T_2=Late sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 6 m.×6 m. (b) 5·5 m.×5·5 m. for 63(48); 5·3 m.×5·3 m. for others. (v) 25 cm.×25 cm. for 63(48); 38 cm.×38 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. (ii) Grain yield and infestation count at harvest. (iv) (a) 1955—1963 (Expts. for 1955 to 1959 are N.A). (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous (Grain yield). For infestation count, error variances are homogeneous. Interactions of Treatments×years in both cases are present.

5. RESULTS :

Grain yield

(i) 2560 Kg/ha. (ii) 720·7 Kg/ha. (based on 3 d.f. made up of Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2
Av. yield	2548	2572

Infestation count

(i) 12·07 degrees. (ii) 2·25 degrees (based on 3 d.f. made up of Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. infestation count in degrees.

Treatment :	T_1	T_2
Av. count in degrees	11·57	12·57

Yield Kg/ha.

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	2757	2679	N.S.	2718	254·9
1961	2854	2696	N.S.	2775	219·4
1962	1689	1557	*	1623	107·2
1963	2894	3356	*	3125	408·9
Pooled	2548	2572	N.S.	2560	720.7

Infestation counts in degrees

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	13·1	15·2	**	14·1	1·7
1961	11·5	11·5	N.S.	11·5	0·9
1962	11·7	12·8	*	12·2	0·9
1963	10·1	10 8	N.S.	10·5	0·9
Pooled	11·6	12·6	N.S.	12·0	2·3

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 60(66), 61(20).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of different times of sowing on the incidence of Paddy stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (iii) Clay loam. (iii) As per treatments. (iv) (a) 2 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 25 cm. (e) 1. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) Co—25 (late) for 60(66); A.D.T. 8 (medium) for 61(20). (vii) Irrigated. (viii) 2 weedings. (ix) 112 cm.; 70 cm. (x) 16, 30.3.1961; 3, 18.3.1962.

2. TREATMENTS :

2 times of sowing : T_1=Early sowing and T_2=Late sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 6·0 m.×6·0 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of stem borer. (iii) Grain yield and infestation count. (iv) (a) 1955—1961 (Expts. for 1953 to 1959 are N.A). (b) No. (c) Results of combined analysis is given under 5 Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous (Grain yield) while heterogeneous (infestation count). Interaction of Treatments×years are present in both cases.

5. RESULTS :

Grain yield

(i) 2038 Kg/ha. (ii) 1243·6 Kg/ha. (based on 1 d.f. made up of Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2
Av. yield	2149	1927

Infestation count

(i) 12·72 degrees. (ii) 2·95 degrees (based on 1 d.f. made up of Treatments×years interaction). (ii) Treatments difference is not significant. (iv) Av. infestation count in degrees.

Treatment :	T_1	T_2
Av. count in degrees	12·30	13·15

Yield Kg/ha.

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	1964	1383	**	1674	198·2
1961	2334	2471	N.S.	2403	178·3
Pooled	2149	1927	N.S.	2038	1243·6

Infestation counts in degrees

Years	T_1	T_2	Significance	G.M.	S.E./plot
1960	12·4	15·1	**	13·8	0·9
1961	12·3	11·2	N.S.	11·8	1·8
Pooled	12·3	13·2	N.S.	12·7	3 0

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 61(53), 62(79), 63(102).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object : To study the effect of different times of sowing on the incidence of Paddy stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×25 cm. (e) 2. (v) 5600 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 37 cm.; 41 cm.; 32 cm. (x) 14, 26.10.1961; 7, 18.10.1962; 29.10.1963 and 7.11.1963.

2. TREATMENTS :

2 times of sowing : T_1=Early and T_2=Late.

Sowing/transplanting for T_1 and T_2 was done on 2.7.1961/27.7.1961 and 16.7.1961/10.8.1961 for 61(53); on 23.6.1962/17.7.1962 and 7.7.1962/31.7.1962 for 62(79) and on 6.7.1963/8.8.1963 and 20.7.1963/22.8.1963 for 63(102).

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 6·0 m.×6·0 m. (b) 5·3 m.×5·3 m. (v) 38 cm.×38 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible attack of stem borer. (iii) Grain yield. (iv) (a) 1961—1963. (b) No. (c) Results of combined analysis is given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and interaction of Treatments×years is absent.

5. RESULTS :

(i) 1790 Kg/ha. (ii) 327·7 Kg/ha. (based on 35 d.f. made up of pooled error and Treatment×years interaction). (iii) Treatments difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2
Av. yield	1719	1862

Years	T_1	T_2	Signifieance	G.M.	S.E./plot
1961	2302	2449	N.S.	2376	292.8
1962	1690	1922	N.S.	1806	442·6
1963	1216	1116	N.S.	1166	225·8
Pooled	1719	1862	N.S.	1790	327·7

Crop :- Paddy (*Kuruvai*). **Ref :- 60(40), 61(15), 62(21), 63(35), 64(30).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To study the effect of soaking seeds in Sod. Bicarbonate solutions on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy for 60(40); G.M.-Paddy for 62(21); Nil for others. (b) G.M. for 62(21); Paddy for others. (c) Nil for 62(21); 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(40): 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (ii) Alluvial clay for 60(40); Clay loam for others. (iii) 24.6.1960/18, 19.7.1960; 1.7.1961/27.7.1961; 27.6.1962/26.7.1962; 29.6.1963/23.7.1963; 13.7.1964/6.8.1964. (iv) (a) 3 to 4 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha (d) 25 cm. ×10 cm. for 60(40) and 61(15); 15 cm.×15 cm. for others. (e) 2. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 60(40); 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 1 to 2 weedings. (ix) 45 cm.; 37 cm.: 41 cm.; 33 cm.; 24 cm. (x) 4.10.1960; 13.10.1961; 7.10.1962; 5.10.1963; 17.10.1964.

2. TREATMENTS :

5 strengths of Sod. Bicarbonate solutions : T_0=0 (no soaking), T_1=2·8%, T_2=4·8%, T_3=6·8% and T_4=8·8%.

Seeds were soaked in above solutions for 48 hours before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 9·1 m. × 3·7 m. for 60(40) and 61(15); 9·3 m. × 4·7 m. for 62(21); 6·1 m. × 3·1 m. for 63(35); 6·1 m. × 4·6 m. for 64(30). (b) 8·9 m. × 3·6 m. for 60(40) and 61(15); 9·3 m. × 4·7 m. for 62(21) ; 5·9 m. × 2·9 m. for 63(35); 5·9 m. × 4·4 m. for 64(30). (v) 12 cm × 5 cm. for 60(40) and 61(15); Nil for 62(21); 8 cm. × 8 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of fulgorids for 64(30), folidol was sprayed; No incidence for others. (iii) Yield of grain. (iv) (a) 1960—1964. (b) No. (c) Results of combined analysis are given under 5. (v) (a) Ambasamudram, Coimbatore, Palur, Pathckottai and Tirurkuppam. (b) Nil. (vi) Continuous heavy rains for 64(30). (vii) Error variances are heterogeneous and interaction of Treatments × years is absent.

5. RESULTS :

60(40)

(i) 3822 Kg/ha. (ii) 231·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3966	3768	3934	3618	3825

61(15)

(i) 3059 Kg/ha. (ii) 224·6 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2873	3058	3085	3132	3174

C.D.=270·6 Kg/ha.

62(21)

(i) 3576 Kg/ha. (ii) 347·0 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3271	3269	3855	3740	3745

C.D.=417·8 Kg/ha.

63(35)

(i) 3650 Kg/ha. (ii) 465·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3535	3680	3583	3787	3665

64(30)

(i) 4146 Kg/ha. (ii) 673·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3997	3969	4774	3870	4219

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 63(54).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of treatments against pests and diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 5.7.63/4.8.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T-3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 33 cm. (x) 9.10.63.

2. TREATMENTS :

Main plot-treatments :

2 durations of sprayings : R_1=3 and R_2=4 sprayings.

Sub-plot treatments :

8 mixture for spraying : F_0=Control (no treatment), F_1=B.H.C. 0·1%+Dithane 0·2%, F_2=D.D.T. 0·2%+Fytolan 0·3%, F_3=D.D.T. 0 2%+Perry cop. 0·3%, F_4=D.D.T. 0·2% +Bordeaux mixture 1%, F_5=Parathion 0·1%+Fytolan 0·3%, F_6=Parathion 0·1%+Parry cop. 0·3% and F_7=Parathion 0·1%+Coppesan 0·5%.

All treatments applied as foliar sprays at 900 litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×2·3 m. (b) 6·3 m.×1·8 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Control measures against gall fly and Helminthosporiose. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2596 Kg/ha. (ii) (a) 575·8 Kg/ha. (b) 286·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	2516	2483	2691	2461	2385	2691	2450	2525
R_2	—	2702	2450	2636	2724	2647	2899	2800	2694
Mean	2500	2609	2467	2664	2593	2516	2795	2625	

Gall fly infestation

(i) 11·1°. (ii) (a) 0·8°. (b) 1·0 degrees. (iii) Main effect of F is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	10·9	10·5	11·0	11·3	11·3	11·0	10·9	11·0
R_2	—	11·4	11·0	11·0	11·0	10·5	10·4	10·0	10·8
Mean	12·7	11·1	10·7	11·0	11·1	10 9	10·7	10·5	

C.D. for F marginal means=1·0 degrees

Analysis of Helminthosporiose leaf infection

(i) 15·4 degrees. (ii) (a) 0·6° (b) 1·1°. (iii) Main effect of R is significant and of F is highly significant. (iv) Mean percentage of helminthosporiose leaf infection in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	16·2	15·6	15·4	15·6	15·9	14·9	14·7	15·5
R_2	—	15·7	15·2	14·2	15·2	14·6	13·9	13·7	14·6
Mean	17·9	16·0	15·4	14·8	15·4	15·2	14·4	14·2	

C.D for R marginal means=0·5°
C.D. for F marginal means=1·1°

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(65).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of treatments against pests and diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (iii) Clay loam. (iii) 2.7.64/25, 26.7.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.-3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 16 cm. (x) 8.10.64.

2. TREATMENTS :

Same as in expt. no. 63 (54) on page 158 except. main plot treatments which are R_1=2 and R_2=3 sprayings.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·1 m. ×3·1 m. (b) 5·6×2·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Control measures against Fulgorid. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-Contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Main-plot treatments modified.

5. RESULTS :

(i) 3008 Kg/ha. (ii) (a) 911·1 Kg/ha. (b) 314·2 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	2993	3003	2755	3166	2935	2981	2866	2957
R_2	—	2995	3015	3191	3286	3443	3067	3178	3168
Mean	2630	2994	3009	2973	3226	3189	3024	3022	

C.D. for F marginal means=314·2 Kg/ha.

Analysis of Fulgorid infestation data (In terms of Fulgorid population counts).

(i) 136 counts (ii) (a) 36·1 counts. (b) 32·5 counts. (iii) None of the effects is significant. (iv) Mean Fulgorid population counts.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	127	161	133	147	134	144	129	139
R_2	—	127	129	127	116	116	134	134	126
Mean	160	127	145	130	132	125	139	132	

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 63(65).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 5.8.63/2.8.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) A.D.T.-3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 33 cm. (x) 8.10.63.

2. TREATMENTS :

Main-plot treatments :

2 numbers of sprayings : R_1=3 and R_2=4 sprayings.

Sub-plot treatments :

9 insecticidal treatments : F_0=Control (no treatment), F_1=B.H.C. 0·1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·3%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7=Thiometon (Ekatin) 0·1% and F_8=Thiometon (Hexatin) 0·1%.

All treatments applied as foliar sprays at 900 liters/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals thereafter as per main plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·7 m.× 2·3 m. (b) 6·3 m.×1·8 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Gall-fly and Helminthosporiose. (iii) Infestation data and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3333 Kg/ha. (ii) (a) 287·9 Kg/ha. (b) 199·5 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	Mean
R_1	—	3052	3161	3435	3566	3522	3413	3479	3435	3385
R_2	—	3019	3314	3489	3588	3522	3205	3479	3303	3365
Mean	3008	3036	3238	3462	3577	3522	3309	3479	3369	

C.D. for F marginal means=200·9 Kg/ha.

Analysis of gall fly infestation data

(i) 17·6 degrees. (ii) (a) 2·5 degrees. (b) 1·7 degrees. (iii) Main effect of F is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	Mean
R_1	—	17·8	17·4	16·3	16·3	17·9	16·6	19·4	16·5	17·3
R_2	—	18·0	17·8	17·1	16·7	17·4	17·1	18·9	16·6	17·4
Mean	19·6	17·9	17·6	16·7	16·5	17·6	16·9	19·2	16·6	

C.D. for F marginal means=173

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(62).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 2.7.64/24.7.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.-3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 16 cm. (x) 6.10.64.

2. TREATMENTS :

Main-plot treatments :

2 numbers of sprayings : R_1=2 and R_2=3 sprayings.

Sub-plot treatments :

10 insecticidal treatments : F_0=Control (no treatments), F_1=B.H.C. 0·1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·03%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7=Ekatin 0·1%, F_8=Sevin 0·1% and F_9=Depterex 0·1%.

All treatments applied as foliar sprays at 900 litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×2·4 m. (b) 6·3 m.×2·0 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Fulgorid. (iii) Infestation data and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3582 Kg/ha. (ii) (a) 307·8 Kg/ha. (b) 279·5 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	3524	3312	3736	3756	3433	3635	3776	3625	3443	3582
R_2	—	3564	3494	3796	3776	3797	3574	3322	3696	3766	3643
Mean	3307	3544	3403	3766	3766	3615	3605	3549	3661	3605	

C.D. for F marginal means=279.5 Kg/ha.

Analysis of Fulgorid infestation data (In terms of fulgorid population counts).

(i) 139 counts. (ii) (a) 39·0 counts. (b) 41·6 counts. (iii) None of the effects is significant. (iv) Mean fulgorid population counts.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	127	145	117	134	118	143	118	123	120	127
R_2	—	156	141	129	129	130	132	150	138	136	138
Mean	195	142	143	123	132	124	137	134	130	128	

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 63(51)**.
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of fungicidal treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (iii) 3.7.63/31.7.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 33 cm. (x) 6.10.63.

2. TREATMENTS :

Main-plot treatments :

2 numbers of sprayings : $R_1=2$ and $R_2=3$ sprayings.

Sub-plot treatments :

6 fungicidal treatments : F_0=Control (no treatment), F_1=Micop 0·3%, F_2=Fytolam 0·3%, F_3=Flit 0·3%, F_4=Bordeaux mixture 1% and F_5=Parrycop 0·3%.

All treatments applied as foliar sprays at 900 litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·8 m. ×4·3 m. (b) 5·3 m.×3·8 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gall fly and Helminthosporiose. (iii) Leaf and earhead infection, grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3941 Kg/ha. (ii) (a) 139·5 Kg/ha. (b) 138·4 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
R_1	—	3746	4035	4010	4201	3979	3994
R_2	—	3869	4232	4090	4010	3986	4037
Mean	3568	3808	4134	4050	4106	3983	

C.D. for F marginal means=141·3 Kg/ha.

(i) 13·3 degrees. (ii) (a) 1·9 degrees. (b) 1·8 degrees. (iii) Main effect of F alone is highly significant. (iv) Mean percentage of Helminthosporiose leaf infection in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
R_1	—	15·8	14·1	11·6	13·3	12·4	13·3
R_2	—	13·6	11·2	9·9	13·2	11·7	11·9
Mean	16·5	14·7	12·7	10·5	13·3	11·1	

C.D. for F marginal means=1·9 degrees.

Crop :- Paddy (*Kuruvai*). **Ref :- T.N. 64(59).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of fungicidal treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 2.7.64/24.7.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) A.D.T.—3 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 16 cm. (x) 6.10.64.

2. TREATMENTS :

Main-plot treatments :

2 numbers of sprayings : R_1=2 and R_2=3 sprayings.

Sub-plot treatments :

8 fungicidal treatments : F_0=Control (no treatment), F_1=Micop 0·3%, F_2=Fytolan 0·3%, F_3=Flit 0·3%, F_4=Parrycop 0·3%, F_5=Liram 0·2%, F_6=Coppesan 0 5% and F_7= Bordeaux mixture 1%.

All treatments applied as foliar sprays at 900 litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·1 m.× 3·1 m. (b) 5·6 m.×2·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of Fulgorid and no disease. (iii) Leaf and grain infection and grain yield. (iv) (a) yield 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3179 Kg/ha. (ii) (a) 445·6 Kg/ha. (b) 225·1 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	3388	3212	3195	3397	3191	3123	3315	3260
R_2	—	3243	3072	3046	3371	3140	3123	3072	3152
Mean	2986	3316	3142	3121	3384	3166	3123	3194	

C.D. for F marginal means=227·3 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(66).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Clay loam. (iii) 29.7.63/4.9.63. (iv) (a) 2 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—10 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 135 cm. (x) 28.1.64.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : $R_1=3$, $R_2=4$ and $R_3=5$ sprayings.

Sub-plot treatments :

9 insecticidal treatments : F_0=Control (no treatment), F_1=B.H.C. 0 1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·3%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7= Thiometon (Ekatin) 0·1% and F_8=Thiometon (Hexatin) 0·1%.

All treatments applied as foliar sprays at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals thereafter as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·6 m. ×2·4 m. (b) 4·1 m.×1·7 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Gall fly and stem borer. (iii) Infestation data, grain and straw yields. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2157 Kg/ha. (ii) (a) 358·1 Kg/ha. (b) 263·8 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	Mean
R_1	—	1892	2022	2153	2136	2104	2104	2136	2102	2081
R_2	—	2022	2300	2116	2397	2205	2316	2381	2218	2244
R_3	—	2104	2300	2495	2332	2136	2267	2316	2120	2259
Mean	1859	2006	2207	2255	2288	2147	2229	2278	2147	

C.D. for F marginal means=215·0 Kg/ha.

Gall fly infestation

(i) 13·0 degrees. (ii) (a) 1·0°. (b) 1·1°. (iii) Main effect of R is significant and that of F is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	Mean
R_1	—	13.8	13·3	13·0	12·6	12·3	13·5	13·2	13·9	13·3
R_2	—	12·9	12·8	12·5	12·2	12·6	12·7	12·7	12·3	12·6
R_3	—	12·7	11·8	11·9	11·8	12·9	13·3	12·5	12·4	12·5
Mean	14·7	13·1	12·9	12.5	12 2	22·9	12·2	12·8	12·8	

C.D. for R marginal means=0·6 degrees.
C.D. for F marginal means=0·9 degrees.

Stem borer infestation

(i) 12·0 degrees. (ii) (a) 3·6 degrees. (b) 2·2 degrees. (iii) Main effect of F alone is significant. (iv) Mean percentage of stem borer infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	Mean
R_1	—	11·6	12·2	11·6	11·0	11·8	11·3	11·9	11·8	11·6
R_2	—	11·8	12·8	9·9	11·8	12·2	10·1	11·7	12·0	11·4
R_3	—	12·1	12·5	11·8	11·3	11 8	12·3	12·5	11·4	12·0
Mean	14·6	11·8	12·2	11·1	11·3	11·9	11·3	12·1	11·8	

C.D. for F marginal means=1·82 degrees.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(63).**

Site :- Reg. Res. Stn., Adutharai. **Type :- 'D'.**

Object :—To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 31.7.64/18.9.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—10 (late) (vii) Irrigated. (viii) 2 weedings. (ix) 72 cm. (x) 7.2.65.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : R_1=3, R_2=4 and R_3=5 sprayings.

Sub-plot treatments :

10 insecticidal treatments : F_0=Control (no treatments). F_1=B.H.C. 0·1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·03%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7=Ekatin 0·1%, F_8=Sevin 0·1% and F_9=Depterex 0·1%.

All treatments applied as foliar sprays at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·1 m.×3·1 m. (b) 2·3 m.×2·3 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gall fly, stem borer and Helminthosporiose. (iii) Infestation data and grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3936 Kg/ha. (ii) (a) 898·2 Kg/ha. (b) 418·7 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	3989	3419	4453	4284	3883	3588	3715	4284	3904	3947
R_2	—	3693	4052	4305	4116	4031	4010	4221	4263	4263	4106
R_3	—	3693	3799	4622	3926	4116	3904	4052	3989	4010	4012
Mean	3173	3792	3757	4460	4109	4010	3834	3996	4179	4059	

C.D. for F marginal means=340·6 Kg/ha.

Gall fly infestation

(i) 7·9 degrees. (ii) (a) 0·94 degrees. (b) 0·5°. (iii) Main effect of F is highly significant. Interaction R×F is significant. (iv) Mean percentage of gall fly infestation in degrees.

F_0=9·0

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	7·9	7·6	7·8	7·5	7 9	7·1	7 8	8·4	8·1	7·8
R_2	—	7·3	7·8	6·7	6·6	6·8	7.6	8·1	8·0	8·1	7·5
R_3	—	8·0	8·5	7·5	7·1	8·8	8·0	8·2	8·2	8·4	8·0
Mean	9·3	7·7	8·0	7·4	7·1	7·6	7·6	8·0	8·19	8·2	

C.D. for F marginal means =0·4

C.D. for F means at the same level of R=0·7

C.D. for R means at the same level of F=0·8

Stem borer infestation

(i) 13·1 degrees. (ii) (a) 0·5°. (b) 0·7°. (iii) Main effect of R is significant and that of F is highly sigoificant. Interaction R×F are highly significant. (iv) Mean percentage of stem borer infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_1	F_9	Mean
R_1	—	13·3	12·0	11·0	11·6	12·3	12·9	12·3	12·9	13·5	12·5
R_2	—	13·0	12·7	12·6	12·2	12·7	13·5	13·7	13·2	13·2	13·0
R_3	—	12·7	14·0	13·6	12·5	12·5	12·7	12·7	12·2	13·4	13·9
Mean	16·2	13·0	12·9	12·7	12·1	12·5	13·0	12·9	12·8	13·4	

C.D. for F marginal means =0·5
C.D. for R marginal means =0.3 Kg/ha.
C.D. for F means at the same level of R=0·9
C.D. for R means at the same level of F=1·0

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 63(69).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 17.10.63/1.12.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) A.D.T.—8 (medium). (vii) Irrigated. (viii) 2 weedings. (ix) 109 cm. (x) 7.4.64.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : R_1=3, R_2=4 and R_3=5 sprayings.

Sub-plot treatments :

10 insecticidal treatments : F_0=Control (no treatment), F_1=B.H.C. 0·1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·03%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7=Thiometon 0·1%, F_8=Carbaryl 0·1% and F_9=Dylox 0·1%.

All treatments applied as foliar sprays at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·6 m. ×2·7 m. (b) 4·1 m.×2·0 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gall fly, stem borer Helminthosporiose. (iii) Infestation data and grain and straw yields. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3123 Kg/ha. (ii) (a) 2293·8 Kg/ha. (b) 1373·8 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	2766	2483	4683	3180	1822	2643	3195	3864	2171	2979
R_2	—	3465	3152	3941	3793	3861	2530	2840	3155	4094	3426
R_3	—	2999	2975	4511	4594	2880	2156	3297	3490	3113	3335
Mean	2016	3077	2870	4378	3856	2854	2443	3111	3503	3126	

C.D. for F marginal means=1118·4 Kg/ha.

Analysis of gall fly infestation

(i) 12·5 degrees. (ii) (a) 0·9°. (b) 0·9°. (iii) Main effect of F is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	12·5	12·4	11·6	11·5	11·8	11·7	12·8	12·6	12·3	12·1
R_2	—	12·4	13·0	11·6	11·9	12·6	12·2	12·7	12·4	12·2	12·3
R_3	—	12·5	12·3	11·1	11·4	12·0	12·8	12·7	12·3	12·1	12·1
Mean	15·3	12·5	12·6	11·4	11·6	12·1	12·2	12·8	12·4	12·2	

C.D. for F marginal means=0·8

Analysis of stem borer infestation

(i) 10·4 degrees. (ii) (a) 1·1 degrees. (b) 0·9 degrees. (iii) Main effect of R effect is significant and that of F effect is highly significant. (iv) Mean percentage of srem borer infestation in degrees.

$F_0=12·6$

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	10·6	10·8	9·8	9·9	10·8	11·4	10·4	10·1	9·9	10·4
R_2	—	10·1	9·7	8·8	9·3	9·7	9·7	9·5	9·8	9·	9·6
R_3	–	10·9	10·5	10·0	9·8	10·3	10·5	10·6	10·6	10·7	10·3
Mean	12·6	10·5	10·3	9·5	9·7	10·3	10·5	10·1	10·2	9·9	

C.D. for R marginal means=0·6

C.D. for F marginal means=0.7

Crop :- Paddy (*Thaladi*).
Site :- Reg. Res. Stn., Aduthurai.

Ref :- T.N. 64(64).
Type :- 'D'.

Object :—To fix up a schedule of insecticidal treatments against pests of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 14.9.64/30.10.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.—8 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 49 cm. (x) 25.2.65.

2. TREATMENTS :

Main-plot treatments :

3 durations of sprayings : $R_1=3$, $R_2=4$ and $R_3=5$ rounds.

Sub-plot treatments :

10 insecticidal treatments : F_0=Control (no treatment), F_1=B.H.C. 0·1%, F_2=D.D.T. 0·2%, F_3=Endrin 0·03%, F_4=Parathion 0·1%, F_5=Trithion 0·1%, F_6=Malathion 0·1%, F_7=Ekatin 0·1%, F_8=Sevin 0·1% and F_9=Depterex 0·1%.

All treatments applied as foliar spray at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals thereafter as per treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·1 m. ×3·1 m. (b) 2·3 m.×2·6 m. (v) 2 rows all round.(vi) Yes.

4. GENERAL :

(i) Good. (ii) The treatments themselves are designed as control measures against pests. (iii) Infestation data and grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4089 Kg/ha. (ii) (a) 261·7 Kg/ha. (b) 354·6 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	4221	4052	4348	4094	3799	4305	4179	4348	4052	4155
R_2	—	3926	4221	4643	4474	3926	3651	3904	4601	4305	4183
R_3	—	3715	3989	4390	4158	3672	4314	4305	4390	4052	4109
Mean	3545	3954	4087	4460	4242	3799	4090	4129	4446	4136	

C.D. for F marginal means=288·7 Kg/ha.

Analysis of gall fly infestation

(i) 5·3 degrees. (ii) (a) 0·6 degrees. (b) 0·4 degrees. (iii) Main effects of R and F are highly signficant. (iv) Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Mean
R_1	—	5·7	6·1	5·4	4·8	5·5	5·8	5·5	5·9	6·0	5·6
R_2	—	5·0	6·4	5·4	4·1	5.2	5·2	5·0	5·2	5·5	5·1
R_3	—	4·8	4·7	4·3	3·4	4·4	4·7	4·3	4·9	5·1	4·5
Mean	7·7	5·2	5·4	5·1	4 1	5·1	5·2	4·9	5·2	5·5	

C.D. for R marginal means=0·34
C.D. for F marginal means=0·32

Stem borer infestation data

(i) 12·2 degrees. (ii) (a) 0·4 degrees. (b) 0·5 degrees. (iii) Main effect of R is significant and that of F is highly significant. (iv) Mean percentage of stem borer infestation in degrees.

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	Mean
R_1	—	13·1	13·1	10·7	10·7	12·7	13·1	11·8	10·8	12·7	12·1
R_2	—	13·0	12·7	10·7	10·2	12·0	13·1	11·4	10·4	12·7	11·8
R_3	—	12·7	12·6	10·1	10·4	11·8	12·5	11·4	10·5	12·4	11·6
Mean	15·8	12·9	12.8	10·5	10·4	12·9	12·9	11·5	10·6	12·6	

C.D. for R marginal means=0·2

C.D. for F marginal means=0·4

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(52).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of fungicidal treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 22.7.63/2.9.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T,—10 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 143 cm. (x) 21.1.64.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : R_1=3, R_2=4 and R_3=5 sprayings.

Sub-plot treatments :

6 fungicidal treatments : F_0=Control (no treatment), F_1=Micop 0·3%, F_2=Fytolan 0·3%, F_3=Flit 0·3%, F_4=Bordeaux mixture 1% and F_5=Parrycop 0·3%.

All treatments applied as foliar sprays at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals thereafter as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·7 m ×3·1 m. (b) 3·2 m.×2·3 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of gal fly, stem borer and Helminthosporiose. (iii) Leaf and earhead infection and grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2714 Kg/ha. (ii) (a) 205·0 Kg/ha. (b) 221·4 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
R_1	—	2652	2617	2802	2952	2754	2755
R_2	—	2710	2816	2802	2785	2720	2767
R_3	—	2740	2587	2829	2768	2740	2733
Mean	2525	2701	2673	2811	2835	2738	

C.D. for F marginal means=184·6 Kg/ha.

Analysis of Helminthosporiose leaf infection data

(i) 44·2%. (ii) (a) 6·7%. (b) 3·3%. (iii) Main effects of R and F are highly significant. (iv) Mean percentage of Helminthosporiose leaf infection.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
R_1	—	48·4	48·8	48·4	43·9	42·7	56·4
R_2	—	52·2	50·5	49·2	48·4	45·5	49·1
R_3	—	34·9	37·8	33·7	30·3	32 3	33·8
Mean	49·68	45·2	45·7	43·8	40·9	40·1	

C.D. for R marginal means=5·2%.
C.D. for F marginal means=2·8%.

* * *

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(60).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of fungicidal treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 31.7.64/19.9.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S +168 Kg/ha. of Super. (vi) A.D.T. -10 (late). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) 4.2.65.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings ; R_1=3, R_2=4 and R_3=5 sprayings.

Sub-plot treatments :

8 fungicidal treatments : F_0=Control (no treatments), F_1=Micop 0·3%, F_2=Fytolan 0·3%, F_3=Flit 0·3%, F_4=Parrycop 0·3%, F_5=*Z*iram 0·20%, F_6=Coppesan 0·5%, F_7= Bordeaux mixture 1%.

All treatments applied as foliar sprays at 900 Litres/ha. The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri weekly intervals there after as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·9 m. ×2·7 m. (b) 4·4 m.×2·0 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gall fly, stem borer and Helminthosporiose. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3860 Kg/ha. (ii) (a) 412·3 Kg/ha. (b) 266·1 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	3997	3797	3840	3949	4263	3900	3977	3960
R_2	—	3940	3720	3949	3860	4026	3877	3797	3881
R_3	—	3626	3883	4111	3783	4183	3826	3889	3900
Mean	3483	3854	3800	3967	3864	4157	3868	3888	

C.D. for F marginal means=219·3 Kg/ha.

Helminthosporiose leaf infection data

(i) 37·73%. (ii) (a) 4·1%. (b) 2·2%. (iii) Main effect of F is highly significant. (iv) Mean percentage of Helminthosporiose leaf infection.

	0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	35·4	38·8	30·6	38·8	37·6	36·8	34·6	36·0
R_2	—	38·5	40·4	33 1	38·2	36·5	37·0	37·3	37·2
R_3	—	38·2	38·2	34·9	38·8	37.6	28·7	36·9	37·7
Mean	42·8	37·4	39·1	32·9	38·6	37·6	37·3	36·3	

C.D. for F marginal means=1·8%.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 63(53).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of fungicidal treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 12.9.63/22.10.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm. × 13 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.-8 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 70 cm. (x) 17.2.64.

2. TREATMENTS :

Same as in expt. no. 63 (52) on page 169.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·3 m. ×4·0 m. (b) 3·5 m. × 3·6 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of gall fly, Stem borer and Helminthosporiose. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2555 Kg/ha. (ii) (a) 191·8 Kg/ha. (b) 246·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	
R_1	—	2554	2786	2614	2770	2583	2661
R_2	—	2606	2505	2445	2667	2641	2573
R_3	—	2505	2503	2487	2591	2618	2541
Mean	2372	2555	2598	2515	2676	2614	

Helminthosporiose leaf infection.

(i) 43·4%. (ii) (a) 1·3%. (b) 2·3%. (ii) Main effect of Fis highly significant. Interaction R × F is significant. (iv) Mean percentage of Helminthosporiose leaf infection.

Mean	F_0	F_1	F_2	F_3	F_4	F_5	Mean
R_1	—	41·2	44·9	42·0	42·7	41·6	42·5
R_2	—	40·7	44·4	44·3	40·2	40·3	42·0
R_3	—	46·0	42·6	41·7	40·6	49·0	42·8
Mean	48·3	42·6	45·0	42·7	41·2	41·6	

C.D. for F marginal means=1·5%.
C.D. for F means at the same level of R=3·3%.
C.D. for R means at the same level of F=3·1%.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 64(61).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :— To fix up a schedule of treatments against diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clay loam. (iii) 14.9.64/12.11.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.-8 (medium) (vii) Irrigated. (viii) 1 weeding. (ix) 46 cm. (x) 10.3.65.

2. TREATMENTS :

Same as in expt. no. 64 (60) on page 170.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×3·1 m. (b) 3·2 m.×2·3 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gall fly, Stem borer and Helminthosporios. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2914 Kg/ha. (ii) (a) 556·3 Kg/ha. (b) 358·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	2802	3007	3041	3178	3041	3144	3144	3051
R_2	—	2768	2802	2870	2939	3041	2870	2939	2890
R_3	—	2836	3041	3075	2939	2802	2870	2870	2919
Mean	2643	2802	2950	2995	3019	2961	2961	2984	

Helminthosporiose leaf infection data.

(i) 40·4%. (ii) (a) 0·2%. (b) 0·7%. (iii) Main effects of R and F are highly significant. (iv) Mean percentage of leaf infection.

Mean	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	40·60	40·30	40·30	39·85	39·40	38·99	38·50	39.7
R_2	—	40·60	39·10	39·25	33·10	38·95	38·95	88·37	39·1
R_3	—	40·60	39·10	39·70	39·40	38.95	33·50	38·22	39·2
	47·45	40·60	39·50	39·75	39·45	39·10	38·11	38·36	

C.D. for R marginal means=0·15%.
C.D. for F marginal means=0·59%.

* * *

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 63(56).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object : To fix up a schedule of treatments against pests and diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 17.10.63/2.12.63. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.×13 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) ADT-8 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 56 cm. (x) 26.3.64.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : R_1=3, R_2=4 and R_3=5 sprayings.

Sub-plot treatments :

7 mixture of insecticides and fungicides : F_0=Control (no treatment), F_1=B.H.C. 0·1%+Dithane 0·2 %, F_2=D.D.T. 0·2%+Fytolam 0·3%, F_3=D.D.T. 0·2%+Parry cop 0·3%, F_4=D.D.T. 0·2%+Bordeaux mixture1%, F_5 =Parathion 0·05%+Dithane 0·2% and F_6=Parathion 0·05% +Parry cop 0·3%.

All treatments applied as foliar sprays at 900 litres/ha, The first round of treatments was given in the nursery a week before transplanting. The next rounds were given at tri-weekly intervals thereafter as per treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·6m. ×3·7 m. (b) 4·1 m.×3·0 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (b) Gall fly, stemborer and Helminthosporiose. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1815 Kg/ha. (ii) (a) 319·8 Kg/ha. (b) 236·7 Kg/ha. (iii) F effect is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	Mean
R_1	—	1758	1634	1815	1916	2042	1754	1820
R_2	—	2121	1616	1972	1867	1897	1800	1879
R_3	—	1649	1492	1790	1935	1962	1895	1787
Mean	1732	1843	1581	1859	1906	1967	1816	

C.D. for F marginal means=196·0 Kg/ha.

Gall fly infestation data.

(i) 12·2 degrees (ii) (a) 1·6^{0}. (b) 1·2^{0}. (iii) F effect is highly significant. (iv) Mean percentage of gall fly infestation in degrees.

	F$_0$	F$_1$	F$_2$	F$_3$	F$_4$	F$_5$	F$_6$	Mean
R$_1$	—	11·7	11·9	11·6	11·8	11·6	10·8	11·6
R$_2$	—	11·8	12·6	12·1	12·0	11·9	12·4	12·1
R$_3$	—	11·8	11·6	11·9	11·7	12·8	11·8	11·9
Mean	14·4	11·8	12·0	11·9	11·8	12·1	11·6	

C.D. for F marginal means=1·0

Stem borer infestation.

(i) 8·83^{0}. (ii) (a) 0·51^{0}. (b) 1·03^{0}. (iii) F effect is significant. (iv) Mean percentage of stemborer infestation in degrees.

	F$_0$	F$_1$	F$_2$	F$_3$	F$_4$	F$_5$	F$_6$	Mean
R$_1$	—	8·1	8·6	9·1	8·4	8.6	8·4	8·5
R$_2$	—	9·3	9·4	8·6	8·4	8·7	8·7	8.8
R$_3$	—	8·3	8·1	8·5	9·0	9.0	8·7	8·6
Mean	8·6	8·6	8·7	8·7	8·6	8·8	8·6	

C.D. for F marginal means=0·9

(i) 28·6^{0}. (ii) (a) 1·1^{0}. (b) 1·2^{0}. (iii) R effect is highly significant. F effect is highly significant. (iv) Mean percentage of Helminthosporiose leaf infection in degrees.

	F$_0$	F$_1$	F$_2$	F$_3$	F$_4$	F$_5$	F$_6$	Mean
R$_1$	—	30·0	27·9	30·6	28·3	27·0	28·1	28·6
R$_2$	—	28·6	27·5	29·1	26·3	27·0	28·2	27·8
R$_3$	—	27·4	27·8	27·6	25·8	27·5	26·5	27·1
Mean	33·4	28·7	27·8	29·1	26·8	27·2	27·6	

C.D. for R marginal means=0·8
C.D. for F marginal means=1·0.

Crop :- Paddy (*Thaladi*). **Ref :- T.N. 64(67).**
Site :- Reg. Res. Stn., Aduthurai. **Type :- 'D'.**

Object :—To fix up a schedule of treatments against pests and diseases of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy loam. (iii) 14.9.64/8.11.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 44 Kg/ha. (d) 25 cm.× 15 cm. (e) 2. (v) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (vi) A.D.T.-8 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 46 cm. (x) 10.3.65.

2. TREATMENTS :

Same as in expt. no. 63(55) on page 151.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×3·1 m., 3·2 m.×2·3 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) The experimental treatments as such are designed as control measures against gall fly ; stemborer Helminthosporiose. (iii) Leaf and grain infection and grain yield. (iv) (a) 1963-contd. modified in 64). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3098 Kg/ha. (ii) (a) 595·9 Kg/ha. (b) 374·5 Kg/ha. (iii) F effect is highly significant. (iv) Av. yield of of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	2973	2870	2934	2802	3178	3178	2836	2966
R_2	—	3451	3075	2836	3075	3485	3110	3280	3187
R_3	—	3280	3075	3007	3144	3622	3280	3554	3280
Mean	2768	3235	3007	2927	3007	3428	3189	3223	3145

C.D. for F marginal means=Kg/ha.

Gall fly infestation

(i) 4·54°. (ii) (a) 0·35°. (b) 0·64°. (iii) Main effect of F and interaction R×F are highly significant. (iv) (Mean percentage of gall fly infestation in degrees.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
F_1	—	3·5	4·1	3·4	5·1	3·6	4·0	5·0	4·1
F_2	—	4·0	4·2	3·9	4·7	3·4	4·3	4·2	4·1
F_3	—	5·0	4·0	4·7	3·8	3·8	4·7	4·3	4·3
Mean	7·0	4·2	4·1	4·0	4·5	3·6	4·4	4·5	

C.D. for R marginal means =0·2
C.D. for F marginal means =0·5
C.D. for F means at the same level of R =0·9
C.D. for R means at the same level of F =0·9

Stem borer infestation.

(i) 13·78°. (ii) (a) 0·78°. (b) 1·03°. (iii) Main effect of F is highly significant. (iv) Mean percentage of stem borer infestation in degrees

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
F_1	—	13·9	14·1	14·4	13·4	13·0	13·5	13·9	13·7
F_2	—	14·0	13·7	13·7	13·4	13·5	13·0	13·6	13·6
F_3	—	13·9	13·6	13·6	12·6	12·9	12·1	13·8	13·3
Mean	15·7	13·9	13·8	13·8	13·2	13·1	12·9	13·8	13·2

C.D. for F marginal means=0·9

Helminthosporiose leaf infection data.

(i) 34·64 %. (ii) (a) 1·63%. (b) 1·18%. (iii) Main effect of F is highly significant. (iv) Mean percentage of leaf infection.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	Mean
R_1	—	34·5	34·6	34·6	34·5	34·0	33·3	32·4	34·0
R_2	—	33·0	34·2	34·0	33·6	33·0	33·0	31·5	33·2
R_3	—	33·9	34·1	34·2	33·3	31·8	32·8	31·8	33·1
Mean	43·2	33·8	34·3	34·3	33·8	32·9	33·0	31·9	

C.D. for F marginal means=0·97%

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 60(64), 61(13), 62(11), 63(19), 64(21).**
Site :- Agri. College and Res.
Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve suitable control measures against the Paddy earhead bug.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) July/September for 60(64); 61(13); 24.7.62/19, 20.9.62 ; 22.7.63/18 to 20.9.63 ; 2.8.64/22, 23.9.64. (iv) (a) 2 to 3 ploughings and levelling. (b) Transplanting. (c) 44·8 Kg/ha. (d) 25 cm. × 15 cm. (e) 2 to 3. (v) G.M. for 60(64); N.A. for 61(13); G.M. at 125 Q/ha.+168 Kg/ha. of Super+168 Kg/ha. of A/S for others. (vi) Co.—19 (late). (vii) Irrigated. (viii) Weeding as and when required. (ix) 52 cm.; 40 cm.; 51 cm.; 34 cm.; 51 cm. (x) Feb. for 60(64); 61(13); 13 to 15.2.63; 16.2.64; 15.2.65.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=B.H.C. 10% dust, T_2=D.D.T. 5% dust, T_3=Endrin 1% dust, T_4=Dieldrin 1·5% dust, T_5=B.H.C. 0·1% sprays, T_6=D.D.T. 0·1% spray and T_7 =Endrin 0·02% spray.

The treatments applied only once to the crop synchronising with the formation of earheads. The dusts were applied in the field at 22·4 Kg/ha. and the sprays were applied at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 4·9 m. × 4·9 m. for 60(64); 9·1 m. × 8·5 m. for others. (b) 4·9 m. × 4·9 m. for 60(64); 8·5 m. × 7·9 m. for others. (v) Nil for 60(64); 30 cm. × 30 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Rice bug were found; control measures as per treatments. (iii) Yield of grain. (iv) (a) 1960 –1964. (b) No. (c) Nil. (v) and (vi) Nil. (vii) The experiment was conducted by Entomologist Agri. College Coimbatore. Error variances are heterogeneous, interaction of treatments × years is present.

5. RESULTS :

(i) 4645 Kg/ha. (ii) 372·1 Kg/ha. [28 d.f. made up of interaction of treatment with years]. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	4299	4651	4668	4662	4670	4736	4647	4824

C.D.=241·0 Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig.	G.M.	S.E./plot
1960	4002	4081	4425	4387	4992	4311	4273	4497	NS	4371	N.A.
1961	4809	5087	5154	5119	4883	5179	4994	5425	NS	5081	N.A.
1962	4281	4950	4743	5027	4654	4998	4920	4765	NS	4792	333·9
1963	4762	5349	5248	5265	5198	5349	5332	5533	NS	5255	419·6
1964	3641	3789	3770	3512	3623	3844	3715	3900	NS	3724	241·9
Pooled	4299	4651	4668	4662	4670	4736	4647	4824	*	4645	372·1

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 60(78), 61(14), 62(12).**

Site :- Agri. College and Res. Instt.,
Coimbatore. **Type :- 'D'.**

Object :—To fix up a schedule of treatments against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil for 62(12); Paddy—Paddy for others. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for 62(12); 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super for 60(78); N.A. for 61(14). (ii) Clay soil. (iii) 25.7.1960/24.9.1960; July, 1961/Sept., 1961; 24.7.1962/8.9.1962. (iv) (a) 3 to 5 ploughings and levelling. (b) Transplanting. (c) 34 Kg/ha. for 60(78); 45 Kg/ha. for others. (d) 25 cm.×15 cm. (e) 2 for 60(78) ; 2 to 3 for others. (v) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super for 60(78); 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super for others. (vi) Co—19 (late). (vii) Irrigated. (viii) Weeding as and when necessary. (ix) 45 cm.; 46 cm.; 51 cm. (x) 25.2.1961; Feb., 1962; 5 to 11.2.1963.

2. TREATMENTS :

Main-plot treatments :

3 numbers of sprayings : $M_1=3$, $M_2=4$ and $M_3=5$ sprayings.

Sub-plot treatments :

9 chemicals : S_0=Control, S_1=B.H.C. 10% dust, S_2=B.H.C. 0·1% spray, S_3=D.D.T. 5% dust, S_4=D.D.T. 0·2% spray, S_5=Texaphone 10% dust, S_6=P-1250 0·1% spray, S_7=Parathion 0·025% spray and S_8=Endrin 0·02% spray.

The first round of application of dusting as well as spraying was done at the nursery stage of the crop. The subsequent dusting and spraying were done at fortnightly intervals in the field. The number of rounds given was as per main-plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×4·3 m. for 60(78); 5·2 m.×6·1 m. for others. (b) 4·9 m.×3·7 m. for 60(78): 4·6 m.×5·5 m. for others. (v) 30 cm.×30 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of Thrips, Jassids, Grass hopper and stem borer for 62(12); No incidence for others. (iii) Grain yield. (iv) (a) 1960—1962. (b) No. (c) Results of combined analysis are given under 5. (v) N.A. (vi) Nil. (vii) Expt. were conducted by Entomologist. Both the error variances for the years 1960, 1961 are N.A. Hence the interaction S. S. of main-plot Treatments×years and sub-plot Treatments×years have been taken as Error (a) and Error (b) respectively.

5. RESULTS :

(i) 5743 Kg/ha. (ii) (a) 605·4 Kg/ha. (based on 4 d.f. made up of Treatments×years interaction). (b) 722·8 Kg/ha. (based on 44 d.f. made up of various components of Treatments×years interaction). (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

S_0=5171 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Mean
M_1	5754	5534	5317	5738	5642	5352	6071	6302	5707
M_2	5730	5748	5679	5548	5783	5573	6074	6662	5850
M_3	5587	5854	5782	5769	5827	5830	6543	5894	5886
Mean	5690	5712	5593	5685	5751	5585	6211	6286	5814

C.D. for S marginal means=343·7 Kg/ha.

Years	M_1	M_2	M_3	Sig.	G.M.	S.E./plot
1960	6397	6747	6747	N.S.	6574	N.A.
1961	5265	5272	5421	*	5237	N.A.
1962	5459	5530	5490	N.S.	5417	864·3
Pooled	5707	5850	5886	N.S.	5743	605·3

Years	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Sig.	G.M.	S.E./plot.
1960	6506	6357	6421	6527	6612	6634	6972	7014	N.S.	6574	N.A.
1961	5214	5312	5100	5115	5199	4945	5735	5934	*	5237	N.A.
1962	5352	5466	5257	5412	5442	5177	5928	5910	*	5417	416·2
Pooled	5690	5712	5593	5685	5751	5585	6211	6286	**	5743	722·8

Crop :- Paddy (*Summer*). **Ref :- T.N. 61(23), 62(25).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out suitable control measures against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) N.A. (ii) Clay. (iii) March/April. (iv) (a) 3 to 4 ploughings with Victory plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 20 cm.×15 cm. (e) 2 to 3. (v) G.L. at 125 Q/ha.+168 Kg/ha. of A/S as top dressing+168 Kg/ha. of Super for 61(23); G.L. at 56 Q/ha. and A/S, Super as in 61(23). (vi) Co.—29 (early). (vii) Irrigated. (viii) Weeding. (ix) 32 cm.; 20 cm. (x) July 1961; July 1962.

2. TREATMENTS :

Main-plot treatments :

3 number of sprayings : M_1=3, M_2=4 and M_3=5 rounds of spray.

Sub-plot treatments :

9 insecticidal treatments : S_0=Control (no insecticide), S_1=B.H.C. dust 10%, S_2=Texaphone 10%, S_3=D.D.T. dust 5%, S_4=B.H.C. spray 1%, S_5=D.D.T. spray 0·2%, S_6=P. 1250 spray 0·1%, S_7=Parathion (folidol) 0·025% spray, S_8=Endrin 0·02% spray.

The insecticidal treatments were given at fortnightly interval commencing from nursery stage.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×4·0 m. (b) 4·9 m.×3·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield of grain. (iv) (a) 1961—1962. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Both the error variances are N.A. Hence the interaction S.S. of main-plot Treatments × years and sub-plot Treatments × years have been taken as Error (a) and Error (b) respectively.

5. RESULTS :

(i) 5491 Kg/ha. (ii) (a) 754·3 Kg/ha. [based on 2 d.f. made up of interaction of treatment (M) with years]. (b) 360·1 Kg/ha. (based on 24 d.f. made up of interactions of various components of treatments (S, M × S) with years). (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

S_0=4711 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Mean
M_1	5049	5213	5584	5369	5319	5315	5428	5971	5406
M_2	5433	5399	5450	5416	5639	5475	5685	6171	5584
M_3	5513	5580	5597	5708	5736	5649	5954	6485	5778
Mean	5332	5397	5544	5498	5565	5480	5689	6209	5589

C.D. for S marginal means=131 4 Kg/ha.

Years	M_1	M_2	M_3	Sig.	G.M.	S.E./plot
1961	5283	5607	5855	N.S.	5489	N.A.
1962	5529	5560	5702	*	5495	N.A.
Pooled	5406	5584	5778	N.S.	5491	754·3

Years	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Sig.	G.M.	SE./plot.
1961	5366	5315	5594	5543	5594	5620	5620	6001	*	5489	N.A.
1962	5298	5480	5494	5452	5536	5340	5759	6418	*	5495	N.A.
Pooled	5332	5397	5544	5498	5565	5480	5689	6209	HS	5491	360·1

Crop :- Paddy **Ref :- T.N. 60(28).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical spraying on yield and control of stem borer disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) G.L. at 5605 Kg/ha.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (b) Black loam. (iii) 25.7.60/26, 27·9.60. (iv) (a) 4 to 5 ploughings. (b) Transplanting. (c) Nil. (d) 15 cm. × 15 cm. (e) N.A. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (vi) Co.—19. (vii) Irrigated, (viii) 1 weeding. (ix) 45 cm. (x) 4.2.61.

2. TREATMENTS :

All combinations of (1), (2) and (3)+2 extra treatments

(1) 4 chemicals : C_1=Meta systox, C_2=Systox, C_3=Pestox and C_4=Ekatin.
(2) 2 concentrations : D_1=0·2% and D_2=0·1%.
(3) 2 methods of application : M_1=Spray and M_2=Irrigation.

Extra treatments : E_1=Water spray and E_2=Control.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 5·6 m.×5·0 m. (b) 4·7 m.×4·1 m. (v) 46 cm.× 46.cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of stem borer. (iii) Yield of grain and infestation counts. (iv) (a) Nil. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 3550 Kg/ha. (ii) 555·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_1=3274 Kg/ha. and E_2=3167 Kg/ha.

	C_1	C_2	C_3	C_4	D_1	D_2	Mean
M_1	3499	3823	8568	3488	3625	3563	3594
M_2	3616	3770	3420	3549	3552	3626	3589
Mean	3558	3796	3494	3518	3588	3594	3591
D_1	3655	3672	3508	3518			
D_2	3460	3921	3478	3518			

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 64(22).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out suitable control measure against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) G.L. at 125 Q/ha.+168 Kg/ha. of A/S.+168 Kg/ha. of Super. (ii) Clayish. (iii) 2.8.64/18 and 19.9.64. (iv) (a) 3 ploughings with country plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 25 cm.×15 cm. (e) 2 to 3. (v) G.L. at 125 Q/ha.+168 Kg/ha. of A/S. as top dressing+168 Kg/ha. of Super. (vi) Co-19(late). (vii) Irrigated. (viii) Weeding. (ix) 51 cm. (x) 12 to 14.2.1965.

2. TREATMENTS :

Main-plot treatments :

10 insecticides : M_0=Control(no insecticides), M_1=Dimeeron 0·04%, M_2=Imidon 0·05%, M_3=Parathion 0·05%, M_4=Endrin 0·04%, M_5=Trithion 0·04%, M_6=Dipterex 0·1%, M_7=Carbaryl 0·1%, M_8=Anthio 0·2% and M_9=Rogor 0·1%.

Sub-plot treatments :

3 number of sprayings : S_1=3, S_2=4 and S_3=4 sprayings.

The application of insecticides commenced from the nursery and given at monthly intervals.

3. DESIGN :

(i) Split-plot. (ii) (a) 10 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 7·3 m.×4·0 m. (b) 6·7 m.×3·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Counts of pests were taken before and 3 days after each spray. (iv) (a) 1964-1965. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 4658 Kg/ha. (ii) (a) 424·4 Kg/ha. (b) 1257·8 Kg/ha. (iii) Main effect of M alone is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	Mean
S_1	—	4804	5382	4641	4715	4389	4478	4641	4240	4715	4667
S_2	—	4789	4596	4522	5189	4374	4315	5189	4063	4685	4636
S_3	—	4848	4863	4418	4685	4537	4804	4819	4611	4433	4669
Mean	4671	4814	4947	4527	4863	4433	4532	4883	4305	4611	

C.D. for M marginal means=420·3 Kg/ha.

Crop :- Paddy (*Summer*). **Ref :- T.N. 65(4).**

Site :- Agrl. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To work out a suitable prophylactre schedule of treatments against pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy — Paddy. (b) Paddy. (c) G.L. 12·4 tonnes/ha.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (ii) Clayish. (iii) 7.3.1965/1.4.1965. (iv) (a) Ploughing with iron plough 3 times and levelling. (b) Thin sowing in nurseries. (c) 44·8 Kg/ha. (d) 20 cm.×10 cm. (e) 3 to 4. (v) G.L. 12·4 tonnes/ha.+168 Kg/ha. of Super+168 Kg/ha. of A/S. (vi) TKM-6 early. (vii) Irrigated. (viii) Weeding. (ix) 20 cm. (x) 9, 10.7.1965.

2. TREATMENTS :

Same as in expt. no. 64(22) on page 180.

3. DESIGN :

(i) Split plot. (ii) (a) 10 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 7·0 m.× 3·4 m. (b) 6·7 m.×3·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Counts of thrips, Jassids, grass hoppers and stem borers before and after the application of the treatment. (iv) (a) 1964—1965/treatments modified. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment was conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 4034 Kg/ha. (ii) (a) 678·6 Kg/ha. (b) 524·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	Mean
S_1	—	3670	4518	4518	3979	3882	4028	3816	4208	3865	4054
S_2	—	3702	4403	3126	3767	4175	4028	3620	4094	4061	3997
S_3	—	4257	3996	4485	3931	4306	4469	3572	3865	4273	4128
Mean	3800	3876	4306	3376	3892	4121	4175	3669	4056	4066	

Crop :- Paddy (*Summer*). **Ref :- T.N. 60(77).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out suitable control measures against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy follow Paddy. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super. (ii) Clay. (iii) 18.12.1960/6.2.1961. (iv) (a) 3 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Culture 6522. (vii) Irrigated. (viii) weeding and hoeing. (ix) 8 cm. (x) 16.5.1961.

2. TREATMENTS :

Same as in expt. no. 60(78), 61(14), 62(12) on page 177.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×3·1 m. (b) 6·1 m.×2·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Infestation count and yield. (iv) (a) 1960 to 1962. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 5487 Kg/ha. (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Mean
M_1	—	4883	4959	5429	5188	5340	5416	5264	5724	5283
M_2	—	5569	5416	5645	5492	5645	5569	5569	5950	5607
M_3	—	5645	5569	5645	5950	5797	5874	6026	6332	5855
Mean	4730	5366	5315	5594	5543	5594	5620	5620	6002	

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 63(18).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out suitable control measures against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (b) Paddy after Paddy. (b) Paddy. (c) G.L. at 125 Q/ha. +168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clayish. (iii) 22.7.1963/10 to 12.9.1963. (iv) (a) 3 ploughings with country plough and levelling. (b) Transplanting. (c) 45 Kg/ha. (d) 25 cm.×15 cm. (e) 2 to 3. (v) G.L. at 125 Q/ha.+168 Kg/ha. of A/S. as top dressing+168 Kg/ha. of Super. (vi) Co-19(late). (vii) Irrigated. (viii) Weeding. (ix) 28 cm. (x) 5.2.1964.

2. TREATMENTS :

Main-plot treatments :

3 no. of sprayings : $M_1=3$, $M_2=4$ and $M_3=5$ sprayings.

Sub-plot treatments :

9 chemicals : S_0=Control, S_1=D.D.T. 5% dust, S_2=B.H.C. 10% dust, S_3=Texophone 10% dust, S_4=Parathion 0·025% spray, S_5=Endrin 0·02% spray, S_6=B.H.C. 0·1% spray, S_7=D.D.T. 0·2% spray and S_8=Sevin 0·1% spray.

The application of the insecticide commenced from the nursery stage and given at monthly intervals.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·2 m.× 6·1 m. (b) 4·6 m.×5·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Number of tillers, percentage of reduction of pests in pretreatment and 72 hours after spraying. (iv) (a) 1963 only. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 6380 Kg/ha. (ii) (a) 600·4 Kg/ha. (b) 513·6 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Mean
M_1	—	6420	6420	6510	6601	6375	6013	6872	6646	6482
M_2	—	6646	6375	6781	6601	6420	6329	6510	6555	6527
M_3	—	6239	6375	6510	7188	6510	6148	6375	6962	6538
Mean	5290	6435	6390	6600	6797	6435	6163	6586	6721	

C.D. for S marginal means=432·8 Kg/ha.

Crop :- Paddy (*Summer*). **Ref :- T.N. 64(25).**

Site :- Agri. College Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To find out suitable control measures against the pests of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.L.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Clayey. (iii) 18.3.64/6.4.64 to 11.4.64. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 20 Kg/ha. (d) 20 cm.×15 cm. (e) 3 to 4. (v) 5605 Kg/ha. of G.L.+168 Kg/ha. of Super+84 Kg/ha. of A/S. (vi) Co.-29 (early). (vii) Irrigated. (viii) Hand weeding. (ix) 13 cm. (x) 9.7.64.

2. TREATMENTS :

Main-plot treatments :

3 number of sprayings : $R_1=3$, $R_2=4$ and $R_3=5$ sprayings.

Sub-plot treatments :

9 pesticide treatments : P_0=Control (no pesticides), P_1=Dimecron 0·04%, P_2=Imidon, P_3=Folidol 0·05% (Parathion), P_4=Endrin 0·04%, P_5=Trithion 0·06%, P_6=Dipteren 0·10%, P_7=Carbaryl 0·10% and P_8=Anthio. 0·20%.

The first round of application of dusting as well as spraying was done at the nursery stage of the crop. The subsequent dusting and spraying were done at fortnightly intervals in the field. The no. of rounds given was as per main plot treatments.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·5 m. ×4·0 m. (b) 4·9×3·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Spraying and dusting done as per treatments against thrips, Jassids, grass hopper and stemborer. (iii) Infestation and yield of grain. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 5348 Kg/ha. (ii) (a) 876·6 Kg/ha. (b) 1062·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	Mean
R_1	—	5687	4751	5340	7022	5479	5288	5947	4993	5563
R_2	—	5167	5201	5670	5964	4993	5097	5409	4595	5262
R_3	—	5618	5548	5687	5461	5375	5271	4751	5756	5433
Mean	4774	5491	5167	5566	6149	5282	5219	5369	5115	

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(85).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of fungicides against Paddy helminthosporiose.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S. (ii) Black loam. (iii) N.A./ 19.7.64. (iv) (a) 4 ploughings. (b) Line planting. (c) 20 Kg/ha. (d) 23 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+168 Kg/ha. of A/S. (vi) TKM-6. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 30 cm. (x) 13.10.64.

2. TREATMENTS :

7 fungicides : T_0=Control (no fungicide), T_1=Fytolan 0·25%, T_2=Shell copper 0·30%, T_3=Copper sandoz 0·35%, T_4=Fungimar 0·30%, T_5=Cupramer 0·30% and T_6=Bordeaux. mixture 0·80%.
All treatments applied as foliar sprays in two rounds, one and two months after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 13·4 m.×4·9 m. (b) 12·2 m.×3·7 m. (v) 60 cm.×60 cm. (vi) Yes.

4· GENERAL :

(i) Very good. (ii) Incidence of helminthosporium. (iii) Leaf incidence and grain yield. (iv) (a) 1963 to 64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 4600 Kg/ha. (ii) 501·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	4126	4724	4535	4555	4883	4352	5027

Helminthosporiose leaf infection

(i) 121·1. (ii) 14·5. (iii) Treatment differences are highly significant. (iv) Mean category values of Helminthosporiose leaf infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Category values	216·8	103·8	112·3	107·3	113·5	109·0	85·0

C.D.=21·6

Crop :- Paddy (*Main*). **Ref :- T.N. 65(38).**

Site :- Agri. College & Res. Instt. Coimbatore. **Type :- 'D'.**

Object : –To test the efficacy of different seed dressing fungicides in the control of Paddy Helminthosporise.

1. BASAL CONDITIONS :

(i) (a) Paddy-follow-Paddy. (b) Paddy. (c) 250 Q/ha. compost. (ii) Clay loam. (iii) 10.9.65/6.10.65. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm. × 15 cm. (e) 2. (v) 250 Q/ha. of compost. (vi) Co. 13. (vii) Irrigated. (viii) 2 weedings. (ix) 31 cm. (x) 21.3.66.

2. TREATMENTS :

10 fungicides : T_0=Control (no fungicides,) T_1=NI ceresan 0·07%, T_2=Ceresan dry 0·22%, T_3=Tillex 0·20%, T_4=Phygon XL 0·14%, T_5=Agrasan 0·28%, T_6=Spergon 0·28%, T_7=Agrosan G.N. 0·28%, T_8=Flit 406 0·22%, and T_9=2% cersan 0·22%.

Dip the seedling before transplanting in the given concentrations and 3 sprayings are given @ 925 litres/ha. at 3 weeks interval starting when the Seedlings are one month old.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 2·1 m. × 1·2 m. (b) 1·5 m. × ·61 m. (v) 30 cm. × 30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Infected by Helminthosporians. (iii) Infection count. (iv) (a) Not cotnd. (b) and (c) Nil. (v) and (vi) Nil. (vii) This experiment was conducted by Govt. Mycologist Coimbatore. Raw data-N.A.

5. RESULTS :

Infection connt of Paddy Helminthosporiose (Category value).

(i) 33 0. (ii) 2·97. (iii) Treatment differences are highly significant. (iv) Av. Category value.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	Mean
Average	29	34	38	32	36	28	33	30	29	41	33·0

C.D.=4·3.

Crop :- Paddy (*Samba*). **Ref :- T.N. 65(20).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To find out suitable control measures for the pest gundhibug by insecticidal methods.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) 5600 Kg/. G.M.+35 Kg/. N as A/S+52·5 Kg/. P_2O_5 as Super+35 Kg. K_2O as M. P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per hactare. (ii) Clayey.(iii) 6.8.65/22.9.65. (iv) Four ploughings with country and iron ploughs and transplanting green manure with Burmese Sathorn. (b) Transplanting. (c) 50 Kg/ha. (d) 15 cm. × 15 cm. (e) One. (v) 5600 Kg. G.M.+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O as M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting/ha. (vi) Co-25. (vii) Irrigated. (viii) 3 weedings by hand dressing crop growth stage. (ix) 33 cm. (x) 10.2.66.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control (no treatment), T_1=B.H.C. 5% dust @ 22 Kg/ha. applied at the milk stage of the crop. T_2=B.H.C. 10% grounds applied in the soil @ 24 Kg/ha. 10 days prior to flowering, T_3=B.H.C. 50% W.P. spray @ 5 gm/litre (900 litres spray fluid/ha. applied with a knapsack sprayer) at boot leaf stage of the crop, T_4=Dimecron 100 applied in the soil @ 0·618 L./ha. 10 days prior to flowering. T_5=Folidol E—605 E C applied in the soil @ 1·235 L./ha. 10 days prior to flowering.

In T_3, T_5 and T_6 the soil application was done through irrigation water . The insecticides were mixed in the irrigation water and the water was kept impounded in the plots for 4 days (3-5 cm depth).

3. DESIGN :

(i) R.B D. (ii) (a) 6. (b) 51 m.×5·5 m. (iii) 4. (iv) (a) 8 m.×5 m. (b) 7·9 m.×4·9 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No incidence of pests and diseases were noted. (iii) Yield of grain only. (iv) (a) 1965 only. (b) and (c) Does not arise. (v) (a) Nil. (b) Does not arise. (vi) Nil. (vii) This expriment was conducted under the All India Co- ordinated rice improvement project.

5. RESULTS :

(i) 4984 Kg/ha. (ii) 656·9 Kg/ha. (iii) Trertment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	4288	5155	4984	5056	4945	5476

C.D.=990·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 65(22).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the most suitable time of application of insecticides for the control of stem borer.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) 5600 Kg. green manure+35 Kg. of N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (ii) Clayey. (iii) 6.8.65/20, 21.9.65. (iv) (a) 3 ploughings using iron and country ploughs and transplanting green manure with Burmese Sathorn. (b) Transplanting. (c) 50 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 5600 Kg. G.M.+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O as M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (vi) Co.—25. (vii) Irrigated. (viii) 3 weedings by hand during crop growth stage. (ix) 33 cm. (x) 9.2.66.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Lindane 6·5% W.P. @ 36·5 Kg/ha. (active ingredient 2399 gm/ha. per appln.) applied 30 days after planting and a week before boot leaf stage, T_2=Folidol E.C. @ 1·235 litres/ha. (active ingredient 577 c.c./ha. per appln.) applied 30 days after planting and a week before boot leaf stage, T_3=Endrin 2% granules @ 40 Kg/ha. (active ingredient 800 gm/ha. per appln.) applied 30 days after planting and a week before boot leaf stage and T_4=Lindane 6·5% W.P. @ 26·28 Kg/ha. (active ingredient 1983 gm/ha. per appln.) applied 50 days after planting and @ 46·15 Kg/ha. (active ingredient 3000 gm/ha. per appln.) applied 80 days after planting.

All insecticides were applied in irrigation water after mixing with 5 litres of water per plot and water was kept impounded in the plots for 4 days after application (3—5 cm. depth).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 27 m.×8 m. (iii) 4. (iv) (a) 8 m.×5 m. (b) 7·9 m.×4·9 m. (v) One row alround the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer (Trial is intended to find out control measures of stem borer). No reportable incidence of diseases. (iii) Data on incidence of pests and yield of grain. (iv) (a) 1965 only. (b) and (c) Does not arise. (v) (a) Nil. (b) Does not arise. (vi) Nil. (vii) This experiment was conducted under the All India Co-ordinated Rice Improvement project by the Paddy Section, Agri. College and Res. Instt., Coimbatore.

5. RESULTS :

I. **Percentage of Dead Hearts** (In terms of trans. values)

(i) 9·27. (ii) 1·47. (iii) Treatments differences are highly significant. (iv) Mean percentage of Dead hearts (trans. values).

T_0	T_1	T_2	T_3	T_4
11·6	8·8	9·4	9·6	6·9

C.D.=3·2.

II. **Percentage of white ears** (In terms of trans. values)

(i) 9·27. (ii) 1·13. (iii) Treatments differences are not significant. (iv) Mean percentage of white ears (trans. values).

T_0	T_1	T_2	T_3	T_4
5·8	4·1	4·7	4·5	4·8

III. **Yield of grain**

(i) 4698 Kg/ha. (ii) 357·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Mean yield of grain in Kg/ha.

T_0	T_1	T_2	T_3	T_4
4170	4839	4807	4892	4780

C.D.=550·83 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 65(23).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out an efficient method of application of insecticides for the control of stem borer.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) 5600 Kg. of G.M.+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O as M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (ii) Clayey. (iii) 6.8.65/19.9.65. (iv) (a) 3 ploughings using iron and country ploughs and transplanting the G.M. with Burmese Satturn. (b) Transplanting. (c) 50 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 5600 Kg. G M.+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O as M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (vi) Co.—25. (vii) Irrigated. (viii) 3 weedings by hand during crop growth stage. (ix) 33 cm. (x) 7, 8.2.66.

2. TREATMENTS :

Main-plot treatments :

2 methods of application of insecticides : M_1=Through irrigation water, M_2=Foliar application.

Sub-plot treatments :

I_0=Control (no treatment)+5 insecticides applied as shown below.

Insecticide	*Applied as*		*Active ingredient per ha. per appln.*	
	Foliar	*Irrigation*	*Foliar*	*Irrigation*
I_1—Phosptamidon	Demecron 100 1 c.c/ha.	Dimecron 100 0·618 litres/ha.	900 gm.	618 gm.
I_2—Lindane W.P.	B.H.C. 50% 5 gm/litre.	Dolgranules 6% 40 Kg/ha.	293 gm.	2399 gm.
I_3—Parathion	Folidol E 605 EC 1 c.c/litre	Folidol E 605 EC 1·235 litres/ha.	420 c.c.	577 c.c.
I_4—Dimethoate	Rogor 40 E 1 c.c/litre	Rogor 40 E 1·235 litres/ha.	270 gm.	371 gm.
I_5—Endrin	Endrex 20 EC 2·7 c.c/litre.	Endrin 2% grarules 40 Kg/ha.	486 gm.	800 gm.

The irrigation water application was done by mixing the insecticide in the standing irrigation water in the plots at the time of brood emergence (on 11.11.65 and 18.12.65) and the water was kept impounded in the plots for 4 days (3—5 cm. depth).

In foliar application first spray was done at the time of brood emergence (11.11.65) and again 12 days after that (23.11.65) covering one brood.

The brood emergence was noted by setting a light trap.

The spray fluid used was @ 900 litres/ha. per application and the sprays were done using a knapsack sprayer.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot (b) 17 m.×35 m. (iii) 4. (iv) (a) 8 m.×5 m. (b) 7·9 m.×4·9 m. (v) One row alround the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. Incidence of diseases negligible which warranted no control measures. (iii) Data on pest incidence and yield of grain. (iv) (a) 1965 only. (b) and (c) Nil. (v) (a) Aduthurai. (b) Nil. (vi) Nil. (vii) This experiment was conducted under the All India Co-ordinated Rice Improvement Project by the Paddy Section, Agri. College and Res. Instt., Coimbatore.

5. RESULTS :

I. **Percentage of dead hearts** (In terms of transformed values of percentage)

(i) 9·03. (ii) (a) 4·83. (b) 2·04. (iii) None of the effects is significant. (iv) Mean percentage of dead hearts (Transformed values).

	I_0	I_1	I_2	I_3	I_4	I_5	Mean
M_1	—	9·7	8·5	8·8	8·4	9·5	9·0
M_2	—	9·2	8·6	8·5	9·2	8·7	8·8
Mean	9·7	9·5	8·5	8·5	8·8	9·1	

II. **Percentage of white ears** (In terms of transformed values)

(i) 3·07. (ii) (a) 2·91. (b) 1·31. (iii) Main effect of I alone is highly significant. (iv) Mean percentage of white ears (transformed values).

	I_0	I_1	I_2	I_3	I_4	I_5	Mean
M_1	—	2·8	0·6	2·7	4·2	2·7	2·6
M_2	—	2·8	2·1	2·8	2·5	2·6	2.6
Mean	5·5	2·8	1·4	2·7	3·3	2·7	

C.D. for I marginal means=1·9.

III. **Grain yield**

(i) 4611 Kg/ha. (ii) (a) 262·7 Kg/ha. (b) 254·8 Kg/ha. (iii) Main effects of I alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_0	I_1	I_2	I_3	I_4	I_5	Mean
M_1	—	4393	4774	4905	4715	5142	4786
M_2	—	4439	4491	4708	4485	4853	4595
Mean	4212	4416	4633	4807	4600	4998	

C.D. for I marginal means=367·9 Kg/ha.

Crop :- Paddy (*Navarai*). **Ref :- T.N. 65(21).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out suitable control measures for stem borer and Gall midge by insecticidal methods.

1. BASAL CONDITIONS :

(i) (a) Paddy after Paddy. (b) Paddy. (c) 5600 Kg. green manure+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super phosphate+35 Kg. K_2O as muriate of potash as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (ii) Clayey. (iii) 29.12.65/29 to 31.1.66 and 1.2.66. (iv) (a) 3 ploughings using iron and country ploughs and transplanting the green manure with Burmese Sathurn. (b) Transplanting. (c) 45 Kg/ha. (d) 15 cm.×15 cm. (e) Doubles (2). (v) 5600 Kg. green manure+35 Kg. N as A/S+52·5 Kg. P_2O_5 as Super+35 Kg. K_2O as M.P. as basal dressing before planting and 35 Kg. N as A/S as top dressing one month after planting per ha. (vi) Co.—29. (vii) Irrigated. (viii) 3 weedings by hand during the growth stage of the crop. (ix) 10 cm. (x) 7.5.66.

2. TREATMENTS :

All combinations of (1) and (2)+a control (no insecticides)

(1) 2 methods of application of insecticides : M_1=Through irrigation water and M_2=Foliar spray.

(2) 4 insecticides : I_1=Lindane, I_2=Parathion, I_3=Diazinon and I_4=Endrin.

The insecticides were applied as follows :

Insecticide	*Applied as*		*Active ingredient per ha. per application.*	
	Irrigation	*Foliar*	*Irrigation*	*Foliar*
(1) Lindane	Gamma BHC 10% granules @ 25 Kg/ha.	Gammaxene 20% EC @ 1·87 c.c/litre.	2·5 Kg. 2500 c.c.	336·6 c.c. 336·24 c.c.
(2) Parathion	Folidol E 605 EC @ 5·353 litres/ha.	Folidol E 605 EC @ 0·80 c.c/litre		
(3) Diazinon	Basudin 20% EC @ 12·50 litres/ha.	Basudin 20% EC at 1·87 c.c/litre.	2500 c.c.	336·6 c.c.
(4) Endrin	Endrin 2% granules @ 125 Kg/ha.	Endrin 20% EC at 1·87 c.c/litre.	2500 gm.	336·6 c.c.

The irrigation water treatments were given on the 15th and 45th days after planting. In this case the insecticides were mixed with 5 litres of water and applied in the irrigation water which was then impounded in the plots for 4 days.

The foliar sprays were given with a knapsack sprayer on the 15th, 25th, 40th, 50th and 60th days after planting. The spray fluid used was 900 litres/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) 8 m.×47 m. (iii) 4. (iv) (a) 8 m.×5 m. (b) 7·9 m.×4·9 m. (v) One row alround the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer only. Incidence of Gall midge was very negligible. (The trial is to find out control measures for these pests). No incidence of diseases. (iii) Data on stem borer incidence and yield of grain. (iv) (a) 1965 only. (b) and (c) N.A. (v) (a) Nil. (b) N.A. (vi) Nil. (vii) This experiment was conducted under the All India Co-ordinated Rice Improvement Project by the Paddy Section, Agri. College and Res. Instt., Coimbatore.

5. RESULTS :

I. **Percentage of dead hearts** (In terms of trans. values)

(i) 3·59. (ii) 0·81. (iii) Control vs. rest of the treatments and I affect are highly significant. (iv) Mean percentage of dead hearts (trans. values).

Control=5·8.

	I_1	I_2	I_3	I_4	Mean
M_1	1·4	4·1	5·0	2·8	3·3
M_2	2·8	3·3	4·5	2·7	3·3
Mean	2·1	3 7	4·8	2·8	3·3

C.D. for the comparison of control vs. rest of treatments=0·9.
C.D. for I marginal means =0 8.

II. Percentage of white ears (In terms of trans. values)

(i) 3·65. (ii) 1·27. (iii) Control vs. Rest of the treatments alone is highly significant, (iv) Mean percentage of white ears (in terms of trans. values).

Control=5·75.

	I_0	I_1	I_2	I_3	Mean
M_1	2·3	3·8	3·7	2·8	3·1
M_2	3·1	4·0	4·7	2·7	3·7
Mean	2·7	3.9	4·2	2·7	3·4

C.D. for the comparison of 'Control vs. Rest' of treatments=1·4.

III. Yield of grain

(i) 4415 Kg/ha. (ii) 250 0 Kg/ha. (iii) 'Control vs. Rest' of the treatments is highly significant. Interaction M×I is higly significant. (iv) Mean yield of grain in Kg/ha.

Control=4006 Kg/ha.

	I_1	I_2	I_3	I_4	Mean
M_1	4288	4386	4649	4728	4513
M_2	4420	4557	4006	4557	4418
Mean	4420	4472	4328	4643	4466

C.D. for the comparison of 'Control vs. Rest' of treatments=273·6 Kg/ha.
C.D. for the body of M×I table =364·9 Kg/ha.

Crop :- Paddy (*Monsoon*).
Site :- Agri. College and Res. Instt., Coimbatore.

Ref :- T.N. 61(41).
Type :- 'D'.

Object :—To study the effect of insecticides against Paddy stem borer.

1. BASAL CONDITIONS :

(i) (a) Paddy-Fallow-Paddy. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super. (ii) Clay loam. (iii) 22.7,61/12.9.61. (iv) (a) 3 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.—19. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 36 cm. (x) 30.1.62.

2. TREATMENTS :

6 insecticides for spraying : I_0=Control (No insecticides), I_1=W.L. 1650 at 0·015%, I_2=W.L. 1650 at 0·022%, I_3=W.L. 1650 at 0·03%, I_4=Folidol at 0·025% and I_5=Endrin at 0·02%.
Treatments were applied as foliar sprays in 2 rounds. The first application was given 2 months after planting and the next one month afterwards.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 8·5 m.×7·9 m. (b) 7·9 m.×7·3 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer negligible. (iii) Infestation count and yield of grain. (iv) (a) 1961—62. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Entomologist, Agri. College, Coimbatore.

5. RESULTS :

(i) 5686 Kg/ha. (ii) 891·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5
Av. yield	5263	5496	5614	5770	5889	6084

Crop :- Paddy (*Summer*). **Ref :- T.N. 62(63).**

Site ;- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticides against Paddy stem borer.

1. BASAL CONDITIONS :

(i) (a) Paddy—follow. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of Super. (ii) Clay. (iii) 10.2.62/15.3.62. (iv) (a) 3 ploughings. (b) Transplanting. (c) 34 Kg/ha. (d) 25 cm.×15 cm. (e) 2. (v) 5600 Kg/ha of F.Y.M.+168 Kg/ha of Super. (v) CO-29. (v) Irrigated. (viii) Weeding and hoeing. (ix) 16 cm. (x) 18.6.62.

2. TREATMENT :

Same as in expt. no. 61(41) on page 190.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·7 m×3·7 m. (b) 6·7 m×3·1 m. (v) One row all around. (vi) Yes.

4. GENERAL :

(i) Very good. (ii) Incidenee of stem-borer negligible. (iii) Infestations count and yield of grain (iv) (a) 1961-62 (season is different). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by the Entomologist, Agri. college, Coimbatore.

5. RESULTS :

(i) 5589 Kg/ha. (ii) 344·4 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatments	I_0	I_1	I_2	I_3	I_4	I_5
Av. yield	4643	5503	5624	5679	5886	6202

C.D.=519·0 Kg/ha.

Crop :- Paddy. *Mansoon*). **Ref :- T.N. 62(118).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To asses the relative efficacy of the fungicides in the control of Paddy bast.

1. BASAL CONDITIONS :

(i) (a) Paddy-paddy. (b) and (c) Nil. (ii) (a) Clay loam. (iii) 2nd fortnight of Sept. 62/N.A. (iv) (a) 3 ploughings. (b) Transplanting. (c) 32 Kg/ha. (d) 30 cm. × 15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+22·4 Kg/ha. of N. (vi) Co. 13. (vii) Irrigated. (viii) 2 weedings. (ix) 43 cm. (x) First week of January '63.

2. TREATMENTS :

10 fungicides : T_0=Control, T_1=Bordeaux Mixture 1%, T_2=B.M. 1%+Folidol 28 c.c. in 55 litres, T_3=Ceresan line mixture at 28 Kg/ha., T_4=Dithane 2·8 at 900 gm. in 450 litres, T_5=Cotton dust at 28 Kg/ha., T_6=Lonocal at 450 gm./180 litres, T_7=Bretan-60 at 450 gm./450 litres. T_8=Micro Cop at 28 Kg/ha. and T_9=Sulphur dust at 28 Kg/ha.

Treatments were applied twice 1½ months after planting and 3 weeks later.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 12·2 m. × 2·1 m. (v) Two runs on eithers sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Moderate infection of blast leaf infection neck infection etc. As per treatment. (iii) Infection count and yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 2375 Kg/ha. (ii) 128 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	2355	2282	2572	2822	2112	2399	2612	2111	2182	2303

C.D.=185·7 Kg/ha.

Crop :- Paddy (*Main*). **Ref :- T.N. 65(30).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object : — To compare the efficacy of various fungicides for the control of rice blast.

1. BASAL CONDITIONS :

(i) (a) Paddy follow Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.M.+67 Kg/ha ofA/S. (ii) Clay loam. (iii) 23.10.65/16.11.65. (iv) (a) 3 ploughings, puddling and levelling. (b) Transplanting. (c) 35 Kg/ha. (d) 30 cm. × 15 cm. (e) 2. (v) 5600 Kg/ha. G.M.+67 Kg/ha. A/S. (vi) Co.-13 (short duration). (vii) Irrigated. (viii) 2 weedings. (ix) 23 cm. (x) 10, 11.3.66.

2. TREATMENTS :

10 fungicides : T_0=Control (no fungicides), T_1=Ceresam lime mixture dust 25 Kg/ha., T_2=Bord mixture 1% spray, T_3=Bord M. 1%+folidal ·025 spray, T_4=Copper oxychloride (Hexacop) 1 Kg/400 litres spray, T_5=Dithane 2·78 ; 0·15% spray, T_6=Sulphur dust 25 Kg/ha., T_7=Cosan 0·2%, spray, T_8=Cuman 0·2% and T_9=Dithane M. 45 ; 0·15%.

The first round of treatments were given one month after transplanting and subsequently, 2 more applications were given at bi weekly intervals and the rate of 1120 litres of spraying liquid or 25 Kg. of dust form-ulations per ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 4·9 m. × 2·4 m. (b) 4·3 m. × 2·1 m. (v) 30 cm. × 15 cm. (iv) Yes.

4. GENERAL :

(i) Very good. (ii) Very stray infections and hence no infestion data was collected. (iii) Yield of paddy. (iv) Not continued. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologist Coimbatore.

5. RESULTS :

(i) 4813 Kg/ha. (ii) 305·8 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of paddy in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	4522	5380	4950	4899	4866	4776	4746	4688	4671	4632

C.D.=443·7 Kg/ha.

Crop :- Paddy (*Main*). **Ref :- T.N. 63(144).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G M.-Paddy. (b) G.M. (c) Nil. (ii) Clay loam. (iii) 18.9.63/17.10.63. (iv) 2 ploughings, puddling, trampling and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M. (vi) Co.-13 (early). (vii) Irrigated. (viii) Weeding, gap filling etc. (ix) 24 cm. (x) 11 and 12.2.64.

2. TREATMENTS :

5 fungicides : T_0=Control, T_1=Bord. mixture 1%+Folidol at 28 C.C. in 55 litres, T_2=Dithane 2·8 at ·9 Kg. in 450 litres, T_3=Dithane M. 45 at ·7 Kg. in 450 litres, T_4=Ceresan lime mixture at 28 Kg/ha.

Chemicals were sprayed only once during the growth period.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×2·8 m. (b) 6·1 m.×2·1 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild infection of leaf and neck infection. Strong attack of jassids and stem borer. (iii) Disease incidence, tiller counts, neck and mode infection counts and grain yield. (iv) to (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2829 Kg/ha. (ii) 353·4 Kg/ha. (iii) Treatments differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2745	2806	2952	3099	2545

Crop :- Paddy (*Main*). **Ref :- T.N. 64(159).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :-'D'.**

Object :— To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G.M.-Paddy. (b) G.M. (c) Nil. (ii) Clayey loams. (iii) 25.9.64/7.11.64. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 30 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M. +33·6 Kg/ha. of N as A/S. (vi) Co.-13 (early). (vii) Irrigated. (viii) 2 weedings. (ix) 34 cm. (x) First week of January 65.

2. TREATMENTS :

5 fungicides : T_0=Control, T_1=Bord. mixture 1%+Folidol at 28 c.c. in 55 litres, T_2=Dithane 2·8 at ·9 Kg/225 litres, T_3=Dithane M.45 at 0·2% (1·5 c.c/litres) and T_4=Ceresan lime dust at 28 Kg/ha..

The treatments were all applied in 2 rounds during the growth period of the crop. The first round was given 1½ months after transplanting and the 2nd round 3 weeks later.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 4·3 m.×3·7 m. (b) 3·7 m.×3·1 m. (v) One row on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) There was incidence of stem borer forwhich folidol was sprayed. (iii) Leaf and neck infection counts. (iv) to (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 3064 Kg/ha. (ii) 254·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Trement	T_0	T_1	T_2	T_3	T_4
Av. yield	336	3588	2655	2794	2922

C.D.=392·5 Kg/ha.

Crop -: Paddy (*Main*). **Ref :- T.N. 65(31).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To evaluate the efficacy of antibiotics in comparison to other fungicides for the control of Rice blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.M.+67 Kg/ha. of A/S. (ii) Clay loam. (iii) 28.10.65/18.11.65. (iv) (a) 3 ploughings, puddling and levelling. (b) Transplanting. (c) 35 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.M.+67 Kg/ha of A/S. (vi) Co-13. (vii) Irrigated. (viii) Weeding twice. (ix) 22 cm. (x) 8.3.66.

2. TREATMENTS :

6 fungicides : T_0=Control (no fungicides), T_1=Aureofungin 1 ml/1·8 litres of water spray, T_2=C.R.R.I. antibiotic 1 ml/11 litres spray, T_3= Bla S 1 g/20 litres spray, T_4=Ceresan lime mixture 25 Kg/ha. (dust) and T_5=Fylotam spray 1 Kg/ 400 litres spray.

5 rounds on 10.12.65, 21.12.65, 31.12.65, 18.1.66 and 25.1.66 were given. The first round of treatments was given three weeks after transplanting and during the tilling stage. During the flowering stage last two rounds were applied within a week. Spray formulations were applied @ 1120 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 5·8 m.×4·9 m. (b) 4·6 m.×4·3 m. (v) 61 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The leaf infections was very sparse and hence no infections data. (iii) Grain yield data. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3872 Kg/ha. (ii) 331·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of paddy in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3480	3983	4089	3710	4077	3893

Crop :- Paddy (*Main*). **Ref :- T.N. 64(230).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To test the efficacy of different proprietary fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 3.6.1964/28.6.64. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (vi) TKM-6. (vii) Irrigated. (viii) 2 weedings. (ix) 40 cm. (x) 13, 14.10.1964.

2. TREATMENTS :

7 fungicidal treatments : T_0=Control, T_1=Fytolan 0·3% 45 gm/18 litres of water, T_2=Shell Copper 0·3% 55 gms/18L., T_3=Copper Sandoz 0·4% 65 gms./18 L;T_4=Fungi maz 0·3% 55 gm/18 L,T_5=Cupramar 0·3% 55 gm/18 L and T_6=Bord. Mix 0·8% (140 gms. each of lime and $CuSO_4$)/18 litres.

3 sprayings at 925 litres of spraying fluid on 22.7.64 ; 11.8.64 and 31.8.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection count of H. Oryzae and yield data. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 4599 Kg/ha. (ii) 502·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	4120	4724	4535	4554	4883	4352	5026

Infection count of H. oryzae.

(i) 121·1. (ii) 14·5. (iii) Treatment differences are highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean	216·8	103·8	112·3	107·3	113·5	109·0	85·0

C.D.=21·6

Crop :- Paddy (*Main*). **Ref :- T.N. 60(102).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) N.A. (ii) Black soil. (iii) Aug. 1960/19.9.1960. (a) 4 ploughings. (b) Transplanting. (c) 25 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (vi) ADT-10. (vii) Irrigated. (viii) 2 weedings. (ix) 41. (x) First week of January 1961.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bord. Mixture 1%, T_2=Fytolan at 1 Kg/400 litres, T_3=Dithane Z–78 at 1½ Kg/400 litres, T_4=Flit 406 at 3 Kg/320 litres, T_5=Sulphur dust at 33·6 Kg/ha., T_6=Ceresan lime mixture (1 : 8) at 28 Kg/ha., T_7=Ferban (0·5%) at 1 Kg/200 litres, T_8=Agrosan dusting powder at 28 Kg/ha., T_9=Ziram at 1 Kg/500 litres, T_{10}=Micro Cop at 1 Kg/300 litres, T_{11}=Colloidal copper at 1 Kg/400 litres and T_{12}=Parry Cop at 1 Kg/400 litres.

T_1 to T_4, T_7 and T_9 to T_{12} were applied as foliar sprays and treatments T_5, T_6 and T_8 as dusts. All treatments applied once to the crop 1½ months after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·7 m.×3·1 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of blast and jassids was very meagre. (iii) Infestation count and yield. (iv) to (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 4520 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield	4431	4566	4415	4875	4011	4822	4446	3976	4530	4570	4674	4655	4791

Crop :- Paddy (*Main*). **Ref :- T.N. 63(143).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G.M.-Paddy. (b) G.M. (c) Nil. (ii) Clay loam. (iii) 8.8.63/10.9.63. (iv) (a) 3 ploughings, puddling and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M. (vi) A.D.T. 10(late). (vii) Irrigated. (viii) 2 weedings, gap filling etc. (ix) 28 cm. (x) 16.3.1964 to 19.3.64.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bordeaux Mixture 1%, T_2=B. Mixture 1%+Folidol 28 c.c. in 55 litres, T_3=Dithane Z–78 ·9 Kg. in 450 litres, T_4=Dithane D-14 2·3 litres in 450 litres of water+·7 Kg. of lime-sulphate+·2 Kg. of lime, T_5=Ceresan lime mixture 28 Kg/ha., T_6=Cotton dust 28 Kg/ha., T_7=Micop 28 Kg/ha., T_8-Nickel chloride ·5 Kg. in 450 litres, T_9=Sulphur dust 33·6 Kg/ha., T_{10}=Agrosan dust 28 Kg/ha., T_{11}=Lonocol ·5 Kg. in 180 litres, T_{12}=Manab ·7 Kg. in 450 litres.

Fungicides were applied thrice at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·7 m.×3·1 m. (v) Two rows on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Severe attack of jassids and stemborer, very strong incidence of leaf sports. (iii) Disease incidence, tiller counts, nick and node infection counts; grain and straw yield. (iv) to (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2954 Kg/ha. (ii) 348·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield	3178	3429	3263	2254	2792	2561	2624	3070	2821	3200	3241	3086	2887

C.D.=499·8 Kg/ha.

Crop :- Paddy (*Main*). **Ref :- T.N. 64(149).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evaluate the relative efficacy of different chemicals in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G.M.-Paddy. (b) G.M. (c) Nil. (ii) Clay loam. (iii) 30.8.64/25.9.64. (iv) (a) 3 ploughings and levelling. (b) Transplanting. (c) 25 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M+ 112 Kg/ha. of A/S. (vi) ADT-10(medium). (vii) Irrigated. (viii) 2 weedings. (ix) 37 cm. (x) First week of January 65.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Micop at 28 Kg/ha., T_2=Dithane D-14 at 0·15%, T_3=Agrosan dust at 28 Kg/ha., T_4=Cotton dust at 28 Kg/ha., T_5=Sulphur dust at 33·6 Kg/ha., T_6=Dithane z-78 at ·9 Kg. in 450 litres of water, T_7=Bord. Mixture 1%, T_8=Bord. Mixture 1%+Folidol 28 c.c. in 55 litres, T_9=Lonocol at ·5 grm. in 180 litres, T_{10}=Manede at ·7 Kg. in 450 litres, T_{11}=Ceresan lime mixture dust at 28 Kg/ha. and T_{12}=Nickel chloride at ·5 Kg. in 2046 litres.

All treatments applied in three rounds during the growth period of crop. The first round was given 3 weeks after transplanting and subsequent rounds at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 4·3 m.×3·7 m. (b) 3·7 m.×3·1 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Only stray incidence of blast. (iii) Leaf infection indices, node and neck infection counts taken. (iv) to (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2388 Kg/ha. (ii) 522·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield	2328	2698	2582	2579	2577	2577	2532	2435	2173	2157	2153	2148	2111

Crop :- Paddy. **Ref :- T.N.60(103).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G.M.-Paddy. (b) G.M. (c) Nil. (ii) Clayey loam. (iii) Oct., 1960/13.11.1960. (iv) (a) 4 ploughings. (b) Transplanting. (c) 25 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+28 Kg/ha. of N as A/S. (vi) Co.—13. (vii) Irrigated. (viii) 3 weedings. (ix) 35 cm. (x) First week of March 1961.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bord. Mixture 1%, T_2=Fytolan at 1 Kg/400 litres, T_3=Dithane Z-78 at 1 Kg/1000 litres, T_4=Flit 406 at 1 Kg/320 litres, T_5=Sulphur dust at 33·6 Kg/ha., T_6= Ceresan lime mixture (1 : 8) at 28 Kg/ha., T_7=Ferban (0·5%) at 1 Kg/200 litres, T_8= Agrosan dusting powder at 28 Kg/ha., T_9=Zinam at 1 Kg/500 litres, T_{10}=Micro cop at 1 Kg/300 litres, T_{11}=Colloidal copper at 1 Kg/400 litres, T_{12}=Paddy cop. at 1 Kg/400 litres and T_{12}=Poddy cop at 1 Kg/400 litres.

Treatments T_1 to T_4, T_7 and T_9 to T_{12} were applied as foliar sprays and treatments T_5, T_6 and T_8 as dusts. All treatments were given in two rounds. All treatments were given in 2 rounds 6 weeks and 9 weeks after transplanting.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60(102) on page 195.

5. RESULTS :

(i) 1751 Kg/ha. (ii) N.A. (iii) The treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield	1572	1989	1828	1409	1599	2258	1830	1446	1932	1735	1758	1751	1656

Crop :- Paddy (*Main*). **Ref :- T.N. 61(88).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—G.M.—Paddy. (b) G.M. (c) Nil. (ii) Clay loams. (iii) 6.10.61/4.11.1961. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 25 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+ 28 Kg/ha. of N. (vi) Co.—13. (vii) Irrigated. (viii) 3 weedings. (ix) 28 cm. (x) 2.3.62 to 9.3.62.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bordeaux mixture 1%, T_2=B. mixture 1%+Folidol at ·1 Kg. in 250 litres. T_3=Colloidal Copper at 1 Kg/400 litres, T_4=Micro Cop. at 1 Kg/.00 litres, T_5= Dithane Z-78 at 1·5 Kg/1000 litres, T_6=Ziram at 1 Kg/500 litres, T_7=Ferban at 1 Kg/200 litres, T_8=Agrosan dust at 28 Kg/ha., T_9=Sulphur dust at 33·6 Kg/ha., T_{10}=Fungimar at 1 Kg/400 litres, T_{11}=Ceresan lime mixture at 28 Kg/ha., and T_{12}=Cotton dust at 28 Kg/ha.

Treatments T_1 to T_7 and T_{10} were applied as foliar sprays, T_8, T_9, T_{11} and T_{12} were applied as dusts. All treatments were given in two rounds, 6 weeks and 9 weeks after transplanting.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60(102) on page 195.

5. RESULTS :

(i) 2527 Kg/ha. (ii) N.A. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2694	2280	2216	3121	2809	2242	2751
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	
	1964	2420	2382	2471	2974	2528	

Infection Count

(i) 2·5%. (ii) and (iii) N.A. (iv) Mean percentage of neck infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_0
Mean %	3·0	1·3	1·7	2·5	2·3	2·7	3·7
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	
	1·9	2·4	3·1	3·4	2·1	2·0	

Crop :- Paddy (*Main*). **Ref :- T.N. 63(145).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy-G.M.-Paddy. (b) G.M. (c) Nil. (ii) Clay loam. (iii) 18.9.63/15.10.63. (iv) (a) 2 ploughings, Puddlings, Trampling and levelling. (b) Transplanting. (c) 34 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M. (vi) Co.—13 (early). (vii) Irrigated. (viii) Weeding, gap filling etc. (ix) 24 cm. (x) 1st to 4.2.64.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bordeaux mixture 1%, T_2=Bord. mixture 1%+Folidol 28 C.C. in 55 litres, T_3=Dithane Z—78 at ·9Kg. in 450 litres,T_4=Dithane D. 14 at 2·5 litres for every 450 litres of water+·7 Kg. of Zn. Sul.+·2 Kg. of lime, T_5=Ceresan lime mixture at 28 Kg/ha., T_6=Cotton dust at 28 Kg/ha., T_7=Micro Cop at 28 Kg/ha., T_8=Nickel chloride at ·5 Kg. in 450 litres, T_9=Sulphur dust at 33·6 Kg/ha., T_{10}=Agrosan dust at 28 Kg/ha., T_{11}= Lonocol at ·5 gm. in 180 litres and T_{12}=Dithana M. 45 at ·7 Kg. in 450 litres.

Fungicides applied once after 1½ months after transplanting.

4. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 4·3 m.×3·7 m. (b) 3·7 m.×3·1 m. (v) One row all around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild leaf infection and stray incidence of stem borer and jassids. (iii) Tiller counts, Neck and Node infection counts, grain and straw yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 2968 Kg/ha. (ii) 276·4 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	3177	3428	3262	2253	2791	2561	2624
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	
	2980	2821	3469	3240	3086	2886	

C.D.=396·7 Kg/ha.

Crop :- Paddy (*Main*). **Ref :- T.N. 64(160).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To select the most effective fungicides for the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—G.M.—Paddy. (b) G.M. (c) Nil. (ii) Clay loams. (iii) 6.10.64/27.10.64. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 25 Kg/ha. (d) 30 cm. × 15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+134 Kg/ha. of A/S. (vi) Co.—13, (early). (vii) Irrigated. (viii) 2 weedings. (ix) 33 cm. (x) Last week of January 1965.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Maneb at 675 gm. in 450 litres, T_2=Dithane Z-78 at ·9 Kg in 450 litres, T_3=Agrosan dust at 28 Kg/ha., T_4=Dithane D. 14 at 0·2% (with zinc Sulphate), T_5= Nickel chloride at ·5 Kg. in 450 litres, T_6=Bord. mixture 1%., T_7=Ceresan lime mixture dust at 28 Kg/ha., T_8=Micro Cop mixture dust at 28 Kg/ha., T_9=Lonocol at ·5 Kg in 100 litres, T_{10}=Sulphur dust at 33·6 Kg/ha., T_{11}=Cotton dust at 28 Kg/ha. and T_{12}=Bord mixture 1%+Folidol 28 C.C. in 55 litres.

All treatments were applied in three rounds during the growth period of crop. The first round was given 3 weeks after transplanting and subsequent rounds at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 4·3 m. × 3·7 m. (b) 3·7 m. × 3·1 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Only very stray infection of leaf blast. (iii) Neck infection, node infection counts and yield of grain. (iv) to (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2776 Kg/ha. (ii) 320·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2435	3068	3059	2938	2878	2855	2806
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	
	2801	2756	2707	2676	2649	2458	

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 62(117).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of fungicides in the Control of Paddy blast.

1. BASAL CONDITIONS :

(a) Paddy—G.M.—Paddy. (b) G.M. (c) Nil. (ii, Clay loam. (iii) 17.9.62/17.10.62. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 30 Kg/ha. (d) 30 cm. × 15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+28 Kg/ha. of N as A/S. (vi) Co.—13. (vii) Irrigated. (viii) 2 weedings. (ix) 43 cm. (x) First week of January, 1963.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bor. mixture 1%, T_2=Bordeaux mixture 1%+Folidol 28 C.C. in 55 litres of water, T_3=Dithane Z-78 at 1 Kg/1000 litres, T_4=Dithane D—14 at 2·3 litres for every 450 litres + Zn. Sul. at ·7 Kg, + lime at ·2Kg. T_5=Ceresan lime mixture at 28 Kg/ha., T_6=Cotton dust at 28 Kg/ha., T_7=Micro Cop at ·5 Kg. in 135 litres, T_8=Nickel chloride at ·5 Kg. in 450 litres, T_9=Sulphur dust at 33·6 Kg/ha., T_{10}=Agrosan dust at 28 Kg/ha., T_{11}=Lonocol and T_{12}=Maneb.

Sprayings was given 3 times at monthly intervlas.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 4·3 m.×3·4 m. (b) 3·7 m.×3·1 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Blast disease infections. (iii) Infestation counts, tillers counts and yield. (iv) to (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2073 Kg/ha. (ii) 237·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1986	1883	2404	2021	2035	2311	2151

	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	2152	1794	2235	2340	1985	1649

C.D.=341·2 Kg/ha.

Crop :- Paddy (*Monsoon*). **Ref :- T.N. 62(119).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative efficacy of the fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—G.M.—Paddy. (b) G.M. (c) Nil. (ii) Clay loam. (iii) 20.7.62/24.8.62. (iv) (a) 5 ploughings with iron plough. (b) Transplanting. (c) 34 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 254 Q/ha. of F.Y.M. +112 Kg/ha. of A/S. (vi) A.D.T.—10. (vii) Irrigated. (viii) 2 weedings. (ix) 42 cm. (v) First week of December 62.

2. TREATMENTS :

13 fungicides : T_0=Control, T_1=Bord. mixture 1%, T_2=Bord. mixture 1%+Folidol 28 C.C. in 55 litres, T_3=Dithane Z—78 at ·9 Kg/450 litres, T_4=Dithane D. 14 at 2·3 litres for every 450 litres+Zinc Sul. ·7 Kg.+·2 Kg. lime, T_5=Ceresan lime mixture at 28 Kg/ha., T_6=Cotton dust at 28 Kg ha., T_7=Micro cop ·5 Kg. in 135 litres, T_8=Nickel Chloride at ·5 Kg/450 litres, T_9=Sulphur dust at 33·6 Kg/ha., T_{10}=Agrosan dust at 28 Kg/ha., T_{11}=Lonocol at ·5 Kg. in 180 litres, T_{12}=Maneb at ·7 Kg. in 450 litres.

The treatments were applied 3 times at monthly intervals.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60(102) on page 195.

5. RESULTS :

(i) 4891 Kg/ha. (ii) 716·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yieid	4920	4496	5342	4705	4774	4846	5492

	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	5162	4424	5191	5043	5167	4021

Crop :- Paddy (*Winter*). **Ref :- T.N. 62(173).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'D'.**

Object :—To test the efficacy of different proprietory fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5600 Kg/ha. of G.L.+33·6 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 2.12.62/4.1.63. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L+33·6 Kg/ha. of N as A/S. (vi) Co.—19. (vii) Irrigated. (viii) 2 weedings. (ix) 29 cm. (x) 6.5.63.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control, T_1=Futolan 0·3% 45 gm/10 litres of water, T_2=Shell Copper 0·3% 55 gm/10 litres of water, T_3=Copper Sandoz 0·4% 65 gm/10 litres of water, T_4 =Fungium 0·3% 55 gm 10 litres of water, T_5=Cupramar 0·3% 55 gm/10 litres of water, T_6=Viligram 0·4% 70 gm/10 litres of water, T_7=Bord. mixture 0·8% (140 gm. of lime+140 gm. of Cu. Sul.)/10 litre.

Dipped the seedlings before transplanting in the given concentrations of the above fungicides in water and the 3 spraying the crop is started on the appearance of the disease at 20 days interval.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection count and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2673 Kg/ha. (ii) 211·0 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	2355	2655	2915	3027	2467	2766	2429	2766

C.D.=369·5 Kg/ha.

Infection counts of H. Oryzae

(i) 18·3. (ii) 2·0. (iii) Treatment differences are not significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	20·0	17.0	17·3	17·7	19·3	19·3	17.3	18·7

Crop :- Paddy (*Main*). **Ref :- T.N. 63(230).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'D'.**

Object :—To test the efficacy of different proprietory fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 5.9.63/19.10.63. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (vi) Co.—19. (vii) Irrigated. (viii) 2 weedings. (ix) 35 cm. (x) 19.2.64.

2. TREATMENTS :

9 fungicidal treatments : T_0=Control, T_1=Fytolan 0·3% at 45 gm/10 litres of water, T_2=Shell Copper 0·3% at 55 gm/10 litres of water, T_3=Copper Sandoz 0·4% at 64 gm/10 litres, T_4=Fungimar 0·3% at 55 gm/10 litre of water, T_5=Cupramar 0·3% at 55 gm/10 litres of water and T_6=Bord. mixture 0·8% at 140 gm. each of lime and Cu.Sul./10 litres of water.

3 sprayings were given @ 925 litres of spraying fluid/ha. at 20 days interval one month after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Average (ii) As per treatments. (iii) Infection count of H. Oryzae and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 1437 Kg/ha. (ii) 213·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1342	1458	1478	1562	1373	1383	1461

Infection count H. Oryzae

(i) 63·4. (ii) 4·9. (iii) Treatment difference is highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean	77·0	61·0	64·0	57·0	59·0	70·0	56·0

C.D.=7·3.

Crop :- Paddy (*Main*). **Ref. :- T.N. 64(228).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'D'.**

Object :—To test the efficacy of different proprietary fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 10 m. tonnes/ha. of F.Y.M.+33·6 Kg/ha. of N as A/S. (ii) (a) Clay loam. (iii) 26.8.1964/11.10.64. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L.+33·6 Kg/ha. of N as A/S. (vi) Co.—19. (vii) Irrigated. (viii) 2 weedings. (ix) 42 cm. (x) 19.2.65.

2. TREATMENTS:

6 fungicidal treatments : T_0=Control, T_1=Fytolan 0·25% 45 gm/18 litres of water, T_2=Shell Copper 0·3% 55 gms/18 litres of water, T_3=Fungimar 0·3% 55 gm/18 litres of water, T_4=Cupramar 0·3% 55 gms/18 litres of water and T_5=Bord. mix. 0·8% 140 gms. each of lime and Cu.Sul./18 litres of water.

3 spraying were given at 925 litres of spraying fluid/ha. on 17.11.64, 9.12.64 and 30.12.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 12·2 m.×3·7 m. (b) 9·2 m.×3·7 m. (v) 152 cm. either side (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments—Infection of P. oryzae and H. oryzae. (iii) Infection count for P. oryzae and H. oryzae and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted by Govt. Mycologosit, Coimbatore.

5. RESULTS :

(i) 3587 Kg/ha. (ii) 364·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3244	3809	3693	3588	3465	3723

Infection Count P. oryzae

(i) 22·3. (ii) 2·1. (iii) Treatment differences are highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	29·0	21·0	20·0	22·0	23·0	19·0

C.D.=3·12.

Infection count H. oryzae

(i) 247·6. (ii) 21·4. (iii) Treatment differences are highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	329·0	243·8	243·5	236·8	241·5	191·0

C.D.=32·2 Kg/ha.

Crop :- Paddy (*Main*). **Ref :- T.N. 65(37).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'D'.**

Object :—To test the efficacy of different proprietary fungicides in the control of Paddy blast.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paddy. (b) Paddy. (c) 5·5 m. tonnes/ha. of G.L.+34 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 4.9.65/12.10 65. (iv) (a) 2 ploughings. (b) Transplanting. (c) 35 Kg/ha. (d) 10 cm.×15 cm. (e) 2. (v) 5·5 M. tonnes/ha. of G.L.+34 Kg/ha. of N as A/S top dressing. (vi) T.K.M. 6. (vii) Irrigated. (viii) 2 weedings. (ix) 32 cm. (x) 7.3.66.

2. TREATMENTS :

6 fungicides : T_0=Control (no fungicides), T_1=Fytolan 0·3% 45 gms/10 litres, T_2=Shell Copper 0·3% 64 gms/10 litres, T_3=Fungimar 0 3% 64 gms/10 litres, T_4=Cupramar 0·3% 64 gms/10 litres, T_5=Bord. mixture 0·8% (140 gm. each of lime and Cu.Sul./10 litres).

Dipped the seedlings before transplanting in the given concentrations of the above fungicides in water and spraying the crop started on the appearence of the disease at the 925 litres of spraying fluid/ha. 3 spraying were given on 10.11.65 ; 6.12.65 and 29.12.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×4·3 m. (b) 6·1 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of blast and leaf spot. (iii) Incidence of blast, leaf spot and yield. (iv) (a) Not contd. (b) and (c) Nil. (v) and (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 1593 Kg/ha. (ii) 364·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of paddy in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1401	1794	1597	1485	1569	1710

B. Incidence of Paddy blast (Index)

(i) 4·4. (ii) 1·2. (iii) Treatment differences are not significant. (iv) Av. incidence.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	5·3	3·3	4·0	4·5	4·5	5·0

C. Helminthosporiose leaf spot infection data

(i) 6885 Kg/ha. (ii) 4·0 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. index of infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. infection	75·3	62·0	65·3	70·5	69·3	69·5

C.D.=6·0 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 60(99).**

Site :- Rice Res. Stn., Tirurkuppam. Type :- 'D'.

Object :— To assess the efficacy of the various proprietory fungicides against Paddy Helminthosporiose.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M. (ii) Clay. (iii) N.A./22.10.60. (iv) (a) 4 ploughings with iron plough. (b) Line planting. (c) 20 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of A/S. (vi) A.S.D.-5. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 20th and 21st Feb., 1961.

2. TREATMENTS :

13 fungicides : T_0=Control (no fungicide), T_1=Bordeaux mixture 1% spray, T_2=Fytolan 1 in 40 spray, T_3=Dithane 0·15% spray, T_4=Flit 406 at 100 gram/32 litres, T_5=Sulpher dust at 33·6 Kg/ha , T_6=Ceresan lime mixture at 28 Kg/ha., T_7=Ferban at 5 gm./litre, T_8=Agresan dust at 28 Kg/ha., T_9=Znam spray at 0·2 Kg/100 litres, T_{10}=Microcop spray at 0·33 Kg/100 litres, T_{11}=Parry cop spray at 0·25 Kg/100 litres and T_{12}=Colloidal copper spray at 0·25/100 litres.

T_1 to T_4, and T_9 to T_{12} were applied as foliar sprays and treatments T_5, T_6 and T_8 as dusts. The treatments applied once to the crop 1½ months after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 4·2 m.×3·7 m. (b) 3·7 m.×3·1 m. (v) 28 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of Helminthosporise. (iii) Infection count and grain yield. (iv) to (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 2306 Kg/ha. (ii) 1324·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield	2115	2565	2255	2156	2414	2497	2249	2396	2122	2301	2408	2331	2170

Crop :- Paddy (*Samba*). **Ref :- T.N. 63(80).**

Site :- Rice Res. Stn., Tirurkuppam. Type :- 'D'.

Object :— To study the effect of fungicides against Paddy Helminthosporiose.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha of F.Y.M.+168 Kg/ha. of A/S. (ii) Clay. (iii) N.A./8.11.63. (iv) (a) 4 ploughings. (b) Line planting. (c) 20 Kg/ha. (d) 23 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of A/S. (vi) Co.-19. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) May 1964.

2. TREATMENTS :

7 fungicidal treatments : T_0=Control, T_1=Fytolan 0·3%, T_2=Shell Copper 0·3%, T_3=Copper Sandoz 0·4%, T_4=Fungimar 0·3%, T_5=Cupramar 0·3% and T_6=Bord. Mixture 0·8%.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 13·4 m.×4·9 m. (b) 12·2 m.×3·7 m. (v) 60 cm.×60 cm. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) As per treatments. (iii) (a) 1963-64 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS ,

(i) 1437 Kg/ha. (ii) 337·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1342	1458	1480	1562	1374	1383	1462

Helminthosporiose leaf infection.

(i) 63·4 (ii) 4·9. (iii) Control vs. rest of treatments as well as differences among fungicidal treatments are all highly significant. (iv) Mean category values of helminthosporiose leaf infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Category value	77·0	61·0	64·0	57·0	59·0	70·0	56·0

C.D. for control vs. others=7·3 Kg/ha.
C.D. for treatment means=5·1 Kg/ha.

Crop :- Paddy (*Samba*). **Ref :- T.N. 64(86).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'D'.**

Object :— To evolve a suitable control measure against Paddy helminthosporiose.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paddy. (b) Paddy. (c) 5600 Kg/ha. of F.Y.M.+168 Kg/ha. of A/S. (iii) Clay. (iii) N.A./ Aug., 64. (iv) (a) 4 ploughings. (b) Line planting. (c) 20 Kg/ha. (d) 23 cm.×15 cm. (e) 2. (v) 5600 Kg/ha. of G.L+168 Kg/ha. of A/S. (vi) Co.-19. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) Feb. 65.

2. TREATMENTS:

6 fungicidal treatments : T_0=Control, T_1=Fungimar at 0·30%, T_2=Bordeaux Mixture at 0·80%, T_3=Shell Copper at 0·30%, T_4=Fytolen at 0·25% and T_5=Cupramar at 0·30%.

All treatments were given as foliar sprays in two rounds. The first spray was given one month after transplanting and the 2nd one month thereafter.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 13·4 m.×4·9 m. (b) 12·2 m.×3·7 m. (v) 60 cm.×60 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of infestation and grain yield (iv) (a) 1963-64 (modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 3751 Kg/ha. (ii) 386·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield grain in Kg/na.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3434	3772	3865	3883	3897	3654

Helminthosporiose leaf infection (Category values)

(i) 247·7. (ii) 21·5. (iii) Treatments differences are highly significant. (iv) Mean category values of Helminthosporise leaf infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Category values	329·0	236·8	191·0	244·3	243·8	241·5

C.D.=32·4

Crop :- Jowar (*Summer*). **Ref :- T.N. 61(65), 62(58), 63(77), 64(81).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object : —To study the effect of different methods of placement of standard and straight fertilizers on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanhemp* for 62(58); *Bajra* for 64(81); *Jowar* for others. (c) 250 Q/ha. of F.Y.M. for 61(65); Nil for 62(58); 124 Q/ha. of compost+224 Kg/ha. of A/S+140 Kg/ha. of Super for others. (ii) Sandy loam. (iii) 12.1.61; 13.1.62; 23.2.63; 3.3.64. (iv) (a) 3 to 4 ploughings. (b) Dibbling. (c) 17 Kg/ha. (d) 30 cm.× 15 cm. for 61(65), 62(58); 41 cm.×23 cm. for others. (e) 1 for 61(65), 62(58); 2 for others. (v) 250 Q/ha. of F.Y.M. for 61(65); 240 Q/ha. of F.Y.M. for others. (vi) Co.—18. (vii) Irrigated. (viii) 1 to 2 weedings+ 1 to 2 hoeings. (ix) 11 cm.; 23 cm.; 10 cm.; 11 cm. (x) 19.4.61; 26.4.62; 1.6.63; 6.6.64.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 types of fertilizers : S_1=Standard mixture to supply 44·8 Kg/ha. of N+12·8 Kg/ha. of P_2O_5+ 25·6 Kg/ha. of K_2O and S_2=Straight fertilizer i.e. 44·8 Kg/ha. of N as A/S +12·8 Kg/ha. of P_2O_5 as Super+25·6 Kg/ha. of K_2O as Mur. Pot.

(2) 3 methods of placement : M_1=Placed in rows at 5 cm. distance on either side of the plant, M_2= Placed at the centre of the two rows and M_3=Placed in the centre of two rows in alternate inter space.

Manures applied in two doses ; ½ at planting as basal dressing and ½ after 30 days of planting i.e. at the time of hoeing and weeding as top dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 14·6 m.×3·4 m. (b) 14·0 m.×2·7 m. for 61(65); 40·5 sq. m. for 62(58); 14·2 m.×2·5 m. for others. (v) 30 cm.×30 cm. for 61(65); N.A. for 62(58); 23 cm.×41 cm. for others (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—64. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

61(65)

(i) 1522 Kg/ha. (ii) 352·5 Kg/ha. (iii) 'Control *vs.* others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=1008 Kg/ha.

	M_1	M_2	M_3	Mean
S_1	1656	1536	1452	1348
S_2	1674	1793	1536	1668
Mean	1665	1665	1494	1608

C.D. for 'control *vs.* others'=317·4 Kg/ha.

62(58)

(i) 746 Kg/ha. (ii) 174·6 Kg/ha. (iii) 'Control *vs.* others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=557 Kg/ha.

	M_1	M_2	M_3	Mean
S_1	695	799	722	739
S_2	738	805	910	818
Mean	717	802	816	778

C.D. for control *vs.* others=157·2 Kg/ha.

63(77)

(i) 1087 Kg/ha. (ii) 350·2 Kg/ha. (iii) 'Control *vs.* others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=701 Kg/ha.

	M_1	M_2	M_3	Mean
S_1	918	1193	1100	1070
S_2	1096	1094	1506	1232
Mean	1007	1144	1303	1151

C.D. for control *vs.* others=315·4 Kg/ha.

64(81)

(i) 608 Kg/ha. (ii) 186·2 Kg/ha. (iii) 'Control *vs.* others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=336 Kg/ha.

	M_1	M_2	M_3	Mean
S_1	704	645	620	656
S_2	670	668	615	651
Mean	687	657	618	654

C.D. for control *vs.* others=167·7 Kg/ha.

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 60(58), 61(91), 62(130), 63(181), 64(188).**

Site :- Millet Breeding Stn., Type :- 'M'.
Coimbatore.

Object :—To study the effect of different levels and methods of application of manures on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil for 60(58) ; Millet—Pulses for others. (b) Fallow for 60(58) and 61(91); Cotton for 62(130); Pulses for others. (c) Nil for 60(58) and 61(91); N.A. for 62(130) and 63(181); 250 Q/ha. of F.Y.M. for 64(188). (ii) Light red loam. (iii) 5.8.60; 31.8.61; 6.8.62; 28.8.63; 21.8.64. (iv) (a) 3 ploughings. (b) Line sowing for 60(58); Dibbling for others. (c) 17 Kg/ha. for 60(58); 13 Kg/ha. for others. (d) 40 cm. × 20 cm. for 60(58); 41 cm. × 15 cm. for others. (e) 1· (v) 62·5 Q/ha. of C.M. (vi) Co.—20 for 63(181): Co.—1 for others. (vii) Unirrigated for 60(58); Irrigated for others. (viii) 2 weedings for 60(58); 2 weedings + 2 thinnings for others. (ix) 50 cm.; 47 cm.; 33 cm.; 25 cm.; 42 cm. (x) 9.1.61; 17,1.62; 28.12.62; 14.1.64; 4.1.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 manurial treatments : M_0=Control, M_1=22·4 Kg/ha. of N as A/S and M_2=M_1+16·8 Kg/ha. of P_2O_5 as Super.

(2) 2 methods of application of manures : A_1=Broadcast and A_2=In furrows.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) 24·1 m. × 20·1 m. for 60(58); N.A. for others. (iii) 4. (iv) (a) 20·1 m. × 4·0 m. for 60(58); 20·0 m. × 2·6 m. for others. (b) 20·1 m. × 2·4 m. for 60(58); 18·0 m. × 1·8 m. for others. (v) 80 cm. on either side for 60(58); 100 cm. × 40 cm. for others. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Attack of mite for 62(130). The affected leaves were removed; Incidence of stem borer, spider mites, earhead bugs and catter pillars at different stages for 63(181) and 64(188) which was controlled by spraying Endrin metasystok combination, wettable sulphur and dusting B.H.C. and D.D.T.; No incidence for others. (iii) Yield of grain. (iv) (a) 1960—64. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous, Treatments × years interaction is present.

5. RESULTS :

(i) 533 Kg/ha. (ii) 92·7 Kg/ha, (based on 20 d.f. made up of various components of Treatments × years interaction). (iii) Main effect of M alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	Mean
A_1	468	530	601	533
A_2	435	561	603	533
Mean	452	545	602	533

C.D. for M marginal means=86·4 Kg/ha.

Av. yield of grain in Kg/ha.

Year	M_0	M_1	M_2	Sig.
1960	204	329	310	**
1961	336	420	620	*
1962	239	289	284	N.S.
1963	359	430	409	N.S.
1964	1120	1262	1389	*
Mean	452	545	602	**

Year	A_1	A_2	Sig.	G.M.	S.E./plot
1960	354	208	**	281	40·0
1961	417	500	N.S.	459	101·8
1962	252	287	N.S.	270	57·0
1963	399	399	N.S.	399	76·0
1964	1242	1271	N.S.	1257	173·6
Mean	533	533	N.S.	533	92·7

Crop :- Jowar (*Kharif*). **Ref :- T.N. 63(185), 64(212).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the effects of different levels and sources of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 40 Kg/ha. of N+20 Kg/ha. of P_2O_5. (ii) Black loamy. (iii) 30.7.63; 1.8.64. (iv) (a) 3 ploughings. (b) Dibbling. (c) 13 Kg/ha. for 1963, 14 Kg/ha. for 1964. (d) 40 cm.×20 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+22·5 Kg/ha. of P_2O_5. (vi) Co.—1. (vii) Irrigated. (viii) 2 weedings. (ix) 21 cm. in 1963, 48 cm. in 1964. (x) 16.12.63; 16.12.64.

2. TREATMENTS :

All combinations of (1) and (2)+a Control
(1) 3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.
(2) 3 levels of N : N_1=22·5, N_2=45·0 and N_3=67·5 Kg/ha.
The fertilizers were applied on 29.8.63 by band placement.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 4·9 m.×8·5 m. (b) 3·3 m.×6·5 m. (v) 81 cm.×102 cm. (vi) Yes.

4. GENERAL :

(i) Not good for 1963; Good for 1964. (ii) Nil. (iii) Grain yield. (iv) (a) 1963—64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Therefore results of individual years are presented under 5. Results.

5. RESULTS :

63(185)

(i) 417 Kg/ha. (ii) 72·2 Kg/ha. (iii) 'Control vs. others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=308 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	402	375	402	393
N_2	429	496	456	460
N_3	402	416	483	434
Mean	411	429	447	429

C.D. for 'control vs. others'=78·1 Kg/ha.

64(212)

(i) 1367 Kg/ha. (ii) 209·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1233 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	1407	1286	1300	1331
N_2	1313	1340	1313	1322
N_3	1434	1434	1608	1492
Mean	1385	1353	1407	1382

Crop :- Jowar *(Summer)*. **Ref -: T.N. 64(211), 65(34).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of different levels and sources of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 40 Kg/ha. of N+20 Kg/ha. of P_2O_5 as standard fertilizer. (ii) Black loamy. (iii) 3.3.64; 1.3.65. (iv) (a) 3 ploughings. (b) Direct sowing. (c) 14 Kg/ha. (d) 40 cm.×20 cm. (e) 2. (v) 120 Q/ha. of F.Y.M.+22·5 Kg/ha. of P_2O_5 as Super. (vi) Co.—18. (vii) Irrigated. (viii) 2 weedings. (ix) 8 cm. in 1964; 18 cm. in 1965. (x) 23.6.64; 7.6.65.

2. TREATMENTS :

All combinations of (1) and (2)+a Control
(1) 3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.
(2) 3 levels of N : N_1=22·5, N_2=45·0 and N_3=67·5 Kg/ha.

Fertilizers were applied as band placement, one month after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 5·7 m.×4·5 m. (b) 4·9 m.×4·1 m. (v) 40 cm. ×20 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1963—65. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent ; therefore results of individual years are presented under 5. Results.

5. RESULTS :

64(211)

(i) 870 Kg/ha. (ii) 135·8 Kg/ha. (iii) 'Control vs. others' and main effect of 'S' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=684 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	737	853	989	866
N_2	819	876	1079	925
N_3	774	859	1006	880
Mean	783	863	1025	890

C.D. for S marginal means =113·7 Kg/ha.
C.D. for 'control *vs.* others'=146·9 Kg/ha.

65(34)

(i) 691 Kg/ha. (ii) 200·9 Kg/ha. (iii) 'Control vs. others' and main effect of N are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=397 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	513	630	674	606
N_2	801	981	858	880
N_3	549	802	706	686
Mean	621	804	746	724

C.D. for N marginal means=168·3 Kg/ha.
C.D for 'Conrol vst. others'=217·3 Kg/ha.

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 62(129), 63(183).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object : – To study the effect of different levels, sources and time of application of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Millets—Pulses. (b) Cotton. (c) N.A. (ii) Light red loam. (iii) 8.8.1962 ; 22.7.1963. (iv) (a) 2 ploughings with Victory plough, 1 with country plough and levelling. (b) Dibbling. (c) 13 Kg/ha. (d) 41 cm.×15 cm. (e) 1. (v) 250 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.—1. (vii) Irrigated. (viii) 2 weedings and thinnings. (ix) 33 cm. ; 16 cm. (x) 21.12.1962 ; 14.12.1963.

2. TREATMENTS :

Main-plot treatments :

3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.

Sub-plot treatments :

All combinations of (1) and (2)+a Control

(1) 3 levels of N : $N_1=22·4$, $N_2=33·6$ and $N_3=44·8$ Kg/ha.

(2) 3 times of application of N : T_1=At sowing, T_2=One month after sowing and T_3=In two split doses, half at sowing and half one month after sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main plots/replication ; 10 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 26·3 sq. m. (b) 14·2 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of slug, stem borer and ear head bugs ; controlled by Endrin spray, B.H.C. and D.D.T. dusting in 63(183). (iii) Yield of grain and straw, population counts, plant height and length of earhead. (iv) (a) 1962 to 63. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Both the error variances are heterogeneous.

5. RESULTS :

62(129)

(i) 1371 Kg/ha. (ii) (a) 602·7 Kg/ha. (b) 293·8 Kg/ha. (iii) 'Control vs. others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=1174 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	Mean
N_1	1407	1267	1389	1321	1362	1381	1354
N_2	1368	1332	1385	1383	1269	1434	1362
N_3	1528	1353	1502	1356	1441	1586	1461
Mean	1434	1317	1425	1353	1357	1467	1392
T_1	1360	1252	1448				
T_2	1423	1260	1388				
T_3	1520	1441	1441				

C.D. for 'control vs. others'=144·4 Kg/ha.

63(183)

(i) 608 Kg/ha. (ii) (a) 204·7 Kg/ha. (b) 124·3 Kg/ha. (iii) Main effect of N and 'control vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=502 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	Mean
N_1	523	611	530	557	555	552	555
N_2	644	616	640	647	629	624	633
N_3	693	646	677	647	641	727	672
Mean	620	624	616	617	608	634	620
T_1	637	630	583				
T_2	608	620	598				
T_3	615	621	666				

C.D. for N marginal means =47·3 Kg/ha.
C.D. for 'control vs. others'=61·1 Kg/ha.

Crop :- Jowar (*Monsoon*).
Site :- Cotton Breeding Stn., Coimbatore.

Ref :- T.N. 62(133).
Type :- 'M'.

Object : – To study the effect of different sources of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sannhemp. (c) Nil. (ii) Black loamy. (iii) 17.8.1962. (iv) (a) Working with Victory plough thrice. (b) Drilling. (c) 13 Kg/ha. (d) 30 cm.×15 cm. (e) 1. (v) 120 Q/ha. of compost. (vi) Co.—1. (vii) Irrigated. (viii) Thinning and filling up of gaps. (iv) 47 cm. (x) 31.12.1962.

2. TREATMENTS :

2 sources of N at 33·5 Kg/ha. : S_1=A/S standard mixture (12 : 6 : 0) and S_2=C/A/N.
A/S mixture and C/A/N mixture were both applied in one full dose as basal dressing in the soil just before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 15. (iv) (a) N.A. (b) 7·6 m.×5·3 m. (v) Two rows on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962 only, (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1749 Kg/ha. (ii) 156·2 Kg/ha. (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2
Av. yield	1742	1757

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(184).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of different sources of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Black loamy. (iii) 15.3.1963. (iv) (a) Working Victory plough thrice and levelling. (b) Drilling. (c) 13 Kg/ha. (d) 30 cm.×15 cm. (e) 1. (v) 12 C.L./ha. of F.Y.M. (vi) Co.—18. (vii) Irrigated. (viii) Working Junior hoe and weeding. (ix) 11 cm. (x) 24.6.1963.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 62(133) on page 213.

5. RESULTS :

(i) 2825 Kg/ha. (ii) 459·8 Kg/ha. (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2
Av. yield	2862	2788

Crop :- Jowar (*Summer*). **Ref :- T.N. 61(90).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To find out the relative efficiency of C/A/N in comparison with A/S as a nitrogenous fertilizer for Jowar.

1. BASAL CONDITIONS :

(i) (a) Millet—Pulses. (b) Cumbu. (c) 250 Q/ha. of F.Y.M. (ii) Light red sandy loams. (iii) 7.3.61. (iv) (a) 2 ploughings with country plough and levelling. (b) Dibbling. (c) 13 Kg/ha. (d) 41 cm.×15 cm. (e) 1. (v) 250 Q/ha. of compost. (vi) Co.—18. (vii) Irrigated. (viii) 2 weeding and thinnings. (ix) 10 cm. (x) 14.7.61.

2. TREATMENTS :

3 sources of 44·8 Kg/ha. of N : S_0=Control (no nitrogen), S_1=A/S and S_2=C/A/N.
N applied just before sowing in the soil as basal dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 5·2 m.×8·0 m. (b) 4·4 m.×8·0 m. (v) One row each on two opposite sides. (vi) Yes.

4. GENERAL :

(i) Not satisfactory due to damage done by heavy rains.(ii)Negligible incidence of pests and diseases (iii) yield of grain and straw, height of plant, length of earhead and population counts. (iv) (a) 1961 only. (b) and (c) Nil. (v) N.A. (vi) Heavy rains at the time of maturity of the crop. Earheads turned mouldy and seeds germinated in *situ*. (vii) Nil.

5. RESULTS :

(i) 314 Kg/ha. (ii) 34·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_0	S_1	S_2
Av. yield	319	303	319

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(182).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :— To study the effect of different levels, sources and times of application of N on Jowar.

1. BASAL CONDITIONS :

(i) (a) Millet-Pulses. (b) Pulses. (c) 250 Q/ha. of F.Y.M. (ii) Light red sandy loam. (iii) 21.3.63. (iv) (a) 2 ploughings with victory plough, 1 with country plough and levelling. (b) Dibbling. (c) 13 Kg/ha. (d) 41 cm. × 15 cm. (e) 1. (v) 250 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.-18. (vii) Irrigated. (viii) 2 weedings and thinnings. (ix) 11 cm. (x) 30.6.1963.

2. TREATMENTS :

Same as in expt. no. 62 (129), 63 (183) on page 212.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 10 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 26·3 Sq. m. (b) 13·2 Sq. m. (v) 2 rows around, (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Only negligible incidence of pests and diseases. (iii) Yield of grain and straw, plant, height, population counts and length of ear head. (iv) (a) 1962-64. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) The details of 1964 expt. including raw data and results etc. are not traceable at the Res. Stn.

5. RESULTS :

(i) 750 Kg/ha. (ii) (a) 63·7 Kg/ha. (b) 138·5 Kg/ha. (iii) Main effects of S, N and T are highly significant. 'Control vs. others' and interaction S×N, S×T, N×T are also highly significant. (iv) Av. yield of grain in Kg/ha.

Control=429 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	Mean
N_1	736	724	739	652	851	697	733
N_2	815	947	710	780	795	897	824
N_3	871	714	816	842	854	705	800
Mean	808	795	755	758	833	766	786
T_1	691	848	735				
T_2	900	768	831				
T_3	831	769	699				

C.D. for S marginal means =27·4 Kg/ha.
C.D. for N or T marginal means =52·9 Kg/ha.
C.D. for 'control vs. others' =68·2 Kg/ha.
C.D. for N or T means at the same levels of S =91·5 Kg/ha.
C.D. for S means at the same levels of N or T =88·5 Kg/ha.
C.D. for body of N×T table =91·4 Kg/ha.

Crop - Jowar (*Kharif*). **Ref :- M. 60(MAE).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :— Type VI—To study the effect of different methods of application of different levels and types of Phosphate on the yield of Jowar.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) to (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)+a Control (3 plots).

(1) 3 types of phosphates : S_1=Super, S_2=Ammo. Phos. and S_3=Di-Calcium Phos.
(2) 2 levels of phosphates : P_1=22·4 and P_2=44·8 Kg/ha.
(3) 3 methods of application : M_1=Broadcast, M_2=6·3 cm. below seed and M_3=Band placement.

3. DESIGN:

(i) R.B.D. (ii) (a) 21. (b) N.A. (iii) 3. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958-60. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 398 Kg/ha. (ii) 205·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=323 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
P_1	369	470	369	360	369	480	403
P_2	470	406	378	304	452	498	418
Mean	420	438	373	332	410	489	410
M_1	231	341	424				
M_2	443	489	298				
M_3	586	484	397				

Crop :- Jowar (*Kharif*). **Ref :- M. 63(MAE).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :— Type II—To study the effect of N, P, K and F.Y.M. on the yield of Jowar.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 30.7.63. (iv) and (v) N.A. (vi) Co.-1. (vii) Irrigated. (viii) and (ix) N.A. (x) 12.12.1963,

2. TREATMENTS :

All combinations (1), (2), (3) and (4).

(1) 2 levels of F.Y.M. : F_0=0 and F_1=5604 Kg/ha.
(2) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.
(3) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.
(4) 3 levels of K_2O as Mur. Pot.=K_0=0, K_1=33·6 and K_2=67·2 Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ confd. (ii) (a) 9 plots/block and 3 blocks for each of F_0 and F_1. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 7 36 Kg/ha. (ii) 198·3 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	383	616	1044	637	749	757	714	613	716	681
F_1	457	840	1076	787	727	858	770	879	724	791
Mean	420	728	1060	712	688	808	742	746	720	736
K_0	417	632	1176	755	635	836				
K_1	401	841	995	745	693	799				
K_2	441	711	1008	637	736	788				
P_0	456	768	912							
P_1	400	618	1046							
P_2	403	798	1222							

C.D fo. N marginal means=113·4 Kg/h.

Crop :- Jowar (*Rabi*). **Ref :- T.N. 60, 62, 64(MAE).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :— Type II : To study the effect of different levels of N, P, K and F.Y.M. on the yield of Jowar.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Jowar*-Groundnut. (b) Cotton. (c) As per treatments. (ii) Red loam. (iii) 15.8.60 ; 3.8.62; 26.8.64. (iv) and (v) N.A. (vi) Co.-1. (vii) Irrigated. (viii) and (ix) N.A. (x) 30.1.61 ; 18.2.63 ; 11.1.65.

2. TREATMETS :

All combinations of (1), (2). (3) and (4).

(1) 2 levels of F.Y.M. : F_0=0, and F_1=5600 Kg/ha.
(2) 3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44·8 Kg/ha.
(3) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
(4) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Fact. confd. (ii) (a) 9 plots/block and 3 blocks for each of F_0 and F_1. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4, GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1957-contd. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

1960

(i) 578 Kg/ha. (ii) 130·5 Kg/ha. (iii) Main effect of N is highly significant and that of K is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	543	620	658	615	644	562	499	679	644	607
F_1	442	520	688	548	569	533	502	570	578	550
Mean	492	570	673	581	606	548	500	624	611	578
K_0	474	467	559	533	571	396				
K_1	538	671	663	584	635	653				
K_2	464	572	797	626	612	595				
P_0	522	540	681							
P_1	534	551	733							
P_2	420	619	605							

C.D. for N or K Marginal means=91·5 Kg/ha.

1962

(i) 758 Kg/ha. (ii) 232·8 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	479	693	797	581	683	704	562	674	733	656
F_1	486	794	1300	808	818	954	968	777	835	860
Mean	483	743	1049	695	751	829	765	725	784	758
K_0	581	649	1065	718	757	820				
K_1	444	749	984	700	673	804				
K_2	423	832	1097	666	822	864				
P_0	439	769	877							
P_1	462	770	1020							
P_2	547	691	1250							

C.D. for N marginal means=163·0 Kg/ha.

1964

(i) 835 Kg/ha. (ii) 251·2 Kg/ha. (iii) Main effect of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	508	713	842	489	795	779	618	758	688	688
F_1	513	937	1495	853	1003	1090	1198	811	936	982
Mean	510	825	1169	671	899	934	908	784	812	835
K_0	581	914	1229	702	1028	994				
K_1	505	772	1075	661	832	858				
K_2	445	788	1203	649	836	951				
P_0	496	734	782							
P_1	510	978	1209							
P_2	525	762	1516							

C.D. for N or P marginal means=175·8 Kg/ha.

Crop :- Jowar (*Kharif*).

Ref :- T.N. 63, 64 (S.F.T) for Coimbatore and 64 (S.F.T.) for Tirnnelveli.

Site :- (District) Coimbatore and Tirunelveli.

Type : 'M'.

Object :—(Type : A_1). To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients

1. BASAL CONDITION :

(i) N.A. (ii) Red and black for Coimbatore; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure)
N_1 =35 Kg/ha. of N
N_2 =70 Kg/ha. of N
P_1 =35 Kg/ha. of P_2O_5
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_2P_1 =70 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_1$ =70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha of K_2O
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type—C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1964 for Coimbatore ; 1962 to 1963 for Salem, 1964—only for R. Puram and Tirunelveli and 65 for N. Arcot. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	27	299	19	141	234	467	465	116·0

Control yield=2119 Kg/ha. ; No. of trials=8.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grainin Kg/ha.	98	230	—32	148	263	477	560	117·0

Control yield=1499 Kg/ha. ; No. of trials=3.

Tirunelveli

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	345	271	247	420	593	667	790	115·0

Control yield=2322 Kg/ha. ; No. of trials=2.

Crop :- Jowar (*Rabi*).

Ref :- T.N. 62,64,65 (S.F.T.) for Coimbatore ; 64,(S.F.T.) for R. Puram and 62, 63, 64, 65 (S.F.T.) for other Centres.

Site :- District : Coimbatore,
Tirchy, R. Puram,
Madurai and Tirunelveli.

Type :- 'M'

Object :—(Type : A_1).To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1 (Kharif) on page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) 1964 to 1965 for R. Puram ; 1962 to 1965 for others [1963—N.A. for Coimbatore and Trichy. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	—21	158	224	0	292	179	447	119·9

Control yield=1792 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	185	321	86	191	373	432	506	56·8

Control yield=2508 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	93	184	88	199	294	384	452	7·1

Control yield=1814 Kg/ha. ; No. of trials=4.

Trichy

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	714	737	288	740	903	1049	1150	102·0

Control yield=2317 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	100	320	125	100	50	612	510	130·1

Control yield=2000 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	50	50	25	25	25	75	125	18·2

Control yield=750 Kg/ha. ; No. of trials=2.

Madurai

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	101	128	483	486	502	250	629	213·8

Control yield=2095 Kg/ha. ; No. of trials=2.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	73	522	—3	613	692	859	1132	123·0

Control yield=2133 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	191	253	49	321	470	613	759	91·9

Control yield=2297 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	325	325	112	300	400	400	648	99·7

Control yield=2100 Kg/ha. ; No. of trials=4.

Tirunelveli

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	217	237	136	339	458	501	787	126·6

Control yield=2225 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	296	428	230	395	411	576	609	86·0

Control yield=2207 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	329	494	115	543	856	1087	1301	123·2

Control yield=1614 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	216	400	50	600	800	950	1166	63·3

Control yield=1266 Kg/ha. ; No. of trials=3.

Crop :- Jowar. **Ref :- T.N. 65(S.F.T.)**

Site :- (District) N. Arcot. **Type :- 'M'.**

Object : (Type : A_1). To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) Nil. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=35 Kg/ha. of N.
N_2=70 Kg/ha. of N.
N_1P_1=35 Kg/ha. of N +35 Kg/ha. of P_2O_5.
N_2P_1=70 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (*Kharif*), Irrigated, on Page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	76	99	53	154	235	382	457	37·4

Control yield=734 Kg/ha. ; No. of trials=11.

Crop :- Jowar (*Rabi*). **Ref :- T.N. 62, 63, 64, 65 (S.F.T.) for Madurai and Tirunelveli ; 62, 64(S.F.T.) for Coimbatore ; 64, 65(S.F.T.) for Trichy ; 64(S.F.T.) for R. Puram.**

Site :- (District) : Madurai, Tirunelveli, Coimbatore, Trichy and R. Puram. **Type :- 'M'.**

Object :—(Type: A_2). To study response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure).
N_1 =35 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
P_2 =70 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2 =35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (*Kharif*) on page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 for Madurai ; 1964 to 1965 for R. Puram ; 1962 to 1966 [1963 and 1965—N.A. for Coimbatore and 1963—N.A. for Trichy] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	157	−89	112	178	0	73	357	99·2

Control yield=2331 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	200	91	123	284	256	444	555	65·3

Control yield=2125 Kg/ha. ; No. of trials=4.

Tirunelveli

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	185	176	377	583	484	621	878	108·5

Control yield=2010 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	104	25	107	264	255	610	744	46·9

Control yield=2470 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	510	148	280	708	840	1037	1334	70·6

Control yield=1630 Kg/ha. ; No. of trials=3.

65(S..T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	483	150	233	683	783	1050	1333	60·7

Control yield=1383 Kg/ha. ; No. of trials=3.

R. Puram

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	222	49	148	172	247	395	568	50·9

Control yield=1260 Kg/ha. ; No. of trials=2.

Trichy

64(S F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	447	350	538	636	782	903	1001	133·9

Control yield=2586 Kg/ha. ; No. of trials=3.

65 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	87	18	16	42	—35	97	197	207·5

Control yield=2675 Kg/ha. ; No. of trials=3.

Madurai

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	336	342	311	447	557	375	602	84·0

Control yield=1753 Kg/ha. ; No. of trials=2.

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	111	—14	66	184	248	759	830	59·0

Control yield=2335 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	148	61	92	333	333	562	679	129·8

Control yield=2335 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	75	81	208	133	265	458	657	28·6

Control yield=1933 Kg/ha. ; No. of trials=4.

Crop :- Jowar (*Kharif*) **Ref :- T.N. 63, 64, 65 (S.F.T.) for Coimbatore and Tirunelveli.**

Site :- (District) : Coimbatore, Tirunelveli. Type :- 'M'.

Object :—(Type : A_2) To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_2 (Rabi) on page 223.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1966 for Coimbatore, 1964 only for R. Puram and Tirunelveli ; 1963 to 1964 for N. Arcot ; 1962 to 1963 for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	356	221	369	290	230	446	773	86·0

Control yield=1783 Kg/ha.; No. of trials=7.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	164	—32	98	164	263	510	543	104·6

Control yield=1614 Kg/ha ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	18	100	197	205	304	392	702	104·2

Control yield=1803 Kg/ha. ; No. of trials=4.

Tirunelveli

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	197	98	98	247	296	296	321	112·7

Control yield=2322 Kg/ha. ; No. of trials=2.

Crop :- Jowar. **Ref :- T.N. 65(S.F.T.).**

Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :—(Type : A_2). To study the response curves of important cereal, easeh and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) Nil. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments,

O=Control (no manure).
N_1=35 Kg/ha. of N.
P_1=35 Kg/ha. of P_2O_5.
P_2=35 Kg/ha. of P_2O_5.
N_1P_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2=35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (*Kharif*) on page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	77	39	100	191	238	383	484	40·5

Control yield=740 Kg/ha. ; No. of of trials=11.

Crop :- Jowar (*Samba*). **Ref :- T.N. 63, 64,65 (S.F.T.) for Coimbatore ; 65(S.F.T.) for R. Puram 64 (S.F.T.)for others.**

Site :- (District) : Coimbatore, R. Puram. and Tirunelveli. **Type :- 'M'.**

Object :—(Type : A_3) To study the response curves of important cereal, cash and oilseeds crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
N_1 =35 Kg/ha. of N.
K_1 =35 Kg/ha. of K_2O.
K_2 =70 Kg/ha. of K_2O.
N_1K_1 =35 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2 =35 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2 =70 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$ =35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1(*kharif*) on page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1966 for Coimbatore ; 1963—only for N. Arcot ; 1962 to 1963 for Salem ; 1964 to 1965 for R. Puram and 1964—only for others (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	168	132	96	205	289	381	378	70·0

Control yield=1612 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	148	0	24	271	271	518	420	93·2

Control yield=1482 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	115	75	158	182	239	341	274	3·3

Control yield=1730 Kg/ha. ; No. of trials=4.

R. Puram

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	30	30	5	—70	—20	55	80	52·3

Control yield=745 Kg/ha. ; No. of trials=2.

Tirunelveli

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	148	98	123	247	345	321	345	76·4

Control yield=2223 Kg/ha. ; No. of trials=2.

Crop :- Jowar (*Rabi*).

Ref :- T.N. 62, 64 (S.F.T.) for Coimbatore
62, 63, 64, 65 (S.F.T.) for Madurai and
Tirunelveli; 64 (S.F.T.) for R. Puram,
65 (S.F.T.) for Trichy.

Site :- (District): Coimbatore, Madurai,
R. Puram, Trichy and Tirunelveli.

Type :- 'M'.

Object :—(Type A_3). To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_3 (Kharif) on page 226 :

4. GENERAL INFORMATION :

(i) to (iii) N.A. (iv) 1962 to 1965 for Madurai ; 1964 –only for R. Puram ; 1962 to 1966 [1963 and 1965 N.A. for Coimbatore and 1963 N.A. for Trichy] for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—18	—228	—267	0	—200	223	45	153·8

Control yield=2555 Kg/ha. ; No. of trials=2.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	186	—1	109	221	177	297	369	70·5

Control yield=1662 Kg/ha. ; No. of trials=5.

Madurai

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	151	—82	14	225	190	385	386	30·6

Control yield=1983 Kg/ha.; No. of trials=2.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	135	204	255	271	417	560	587	97·0

Control yield=2034 Kg/ha. ; No. of trials=8.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	329	61	156	531	551	700	710	75·9

Control yield=2153 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	307	350	625	495	666	709	856	33·9

Control yield=1916 Kg/ha. ; No. of trials=4.

R. Puram

64(S.F T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	172	74	172	172	222	271	370	52·6

Control yield=1235 Kg/ha. ; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	173	244	396	490	580	852	914	144·5

Control yield=1841 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	65	98	65	—32	—98	98	395	123·0

Control yield=2174 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	411	82	230	494	625	823	988	34·6

Control yield=1317 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	416	50	200	550	700	883	1000	40·2

Control yield=1233 Kg/ha. ; No. of trials=3.

Trichy

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	263	133	258	368	388	440	608	122·6

Control yield=1342 Kg/ha.; No. of trials=2.

Crop :- Jowar **Ref :- T.N. 65(S.F.T.)**
Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :—(Type A_3). To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure)
N_1=35 Kg/ha. of N.
K_1=35 Kg/ha. of K_2O.
K_2=70 Kg/ha. of K_2O.
N_1K_1=35 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2=35 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2=70 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$=35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (Kharif) on page 219.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only. (b) N.A. (c) Nil. (v) to (vii) N.A.

6. RESULTS :

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	80	62	86	242	269	344	410	38·1

Control yield=686 Kg/ha. ; No. of trials=11.

Crop :- Jowar. **Ref :- T.N. 60, 61(S.F.T).**

Site :- (District) Salem. **Type :- 'M'.**

Object : --Type A : –To study the response of Jowar to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red. (iii) to (x) N.A.

2. TREATMENTS:

O =Control (no manure)
N =22·4 Kg/ha. of N as A/S
P =22·4 Kg/ha. of P_2O_5 as Super.
K =22·4 Kg/ha. of K_2O as Mur. Pot.
NP =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
NK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
PK =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
NPK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on kharif cereal, 8 on a rabi cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the four zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960—61. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

60(S.F.T.)

Effect	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	90	250	850	313·0	—140	—80	—180	270	44·0

Control yield=2840 Kg/ha.; No. of trials=2.

61(S.F.T.)

Effect	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	350	390	290	41·0	—70	—110	—180	20	48·0

Control yield=2440 Kg/ha.; No. of trials=4.

Crop :- Jowar. **Ref :- T.N. 61(S.F.T).**

Site :- As per results. **Type :- 'M'.**

Object : Type A :—To study the response of Jowar to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black. (iii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A (60) on page 230.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

			Av. response to					Interaction effect			
District	No of trials	Control	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Coimbatore	9	1920	170	80	150	36·0	—20	10	80	40	39·0
Madurai	4	2680	510	320	520	65·0	50	190	60	110	118·0

Crop :- Jowar. **Ref :- T.N. 60(S.F.T).**

Site :- (District) : Coimbatore and Tiruchirapalli. **Type :- 'M'.**

Object :—Type B :—To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red for Tiruchirapalli. (iii) to (x) N.A.

2. TREATMENTS :

o =Control (no manure).
n_1 =22·4 Kg/ha. of N as A/S.
n_2 =44·8 Kg/ha. of N as A/S.
n_1' =22·4 Kg/ha. of N as Urea.
n_2' =44·8 Kg/ha. of N as Urea.
n_1'''=22·4 Kg/ha. of N as C/A/N.
n_2'''=44·8 Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in Type A (60) on page 230.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Av. yield of grain in Kg/ha.

District	No. of trials	Control	n_1	n_2	n_1'	n_2'	n_1'''	n_2'''	S.E/Mean
Coimbatore	2	2420	2960	3420	2730	3280	2570	2790	166 2
Tiruchirapalli	2	2133	2210	2390	2110	2350	2090	2380	47·4

Crop :- Jowar. **Ref :- T.N. 61(S.F.T.)**

Site :- (District) : Coimbatore, Salem and Tirunelveli. **Type :- 'M'.**

Object :—Type B :—To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red for others. (iii) to (x) N.A.

2. TREATMENTS :

O=Control (No manure).
n_1=22·4 Kg/ha. of N as A/S.
n_2=44·8 Kg/ha. of N as A/S.
n_1'=22·4 Kg/ha. of N as Urea.
n_2'=44·8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN

Same as in type A (60) on page 230.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Av. yield of grain in K/ha.

District	No. of trials	O	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Coimbatore	7	1700	2000	2100	1990	2080	2130	2240	64·3
Salem	3	2800	3610	3760	3420	3520	3240	3260	58·7
Tirunelveli	2	1300	1530	1880	1460	1890	1400	1730	22·6

Crop :- Jowar (*Kharif*). **Ref :- M. 60, 61(M.A.E.).**

Site :- M.A.E. Centre, Bhavanisagar. **ype :- 'CM'.**

Object : Type VIII : To study the effect of different row spacings along with different levels of N and P on the yield of Jowar.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 15.8.60 ; 22.8.61. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) Co-1. (vii) Irrigated. (viii) and (ix) N.A. (x) 10.1.61 ; 2.1.62.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 spacings between rows : S_1=15, S_2=30 and S_3=46 cm. between rows.
(2) 3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44.8 Kg/ha.
(3) 3 levels of P_2O_5 as Super=P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

3. DESIGN ;

(i) 3^3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1957-contd. (b) No. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1960

(i) 1067 Kg/ha. (ii) 418·2 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
S_1	590	983	1355	824	988	1116	976
S_2	898	1272	1335	1171	1135	1198	1168
S_3	892	1096	1186	838	1263	1073	1058
Mean	793	1117	1292	944	1129	1129	1067
P_0	668	915	1250				
P_1	923	1206	1258				
P_2	788	1230	1369				

C.D. for N marginal means=292·8 Kg/ha.

1961

(i) 1189 Kg/ha. (ii) 297·9 Kg/ha. (iii) Main effects of S and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
S_1	784	895	1245	904	1051	970	975
S_2	756	1190	1503	1125	1134	1191	1150
S_3	1042	1466	1817	1347	1411	1568	1442
Mean	861	1184	1522	1125	1199	1243	1189
P_0	775	1199	1401				
P_1	848	1144	1605				
P_2	960	1209	1560				

C.D. for N or S marginal means=208·5 Kg/ha.

Crop :- Jowar (*Kharif*). **Ref :- T.N. 63 to 65(M.A.E.).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'CMV'.**

Object :—Type XIII—To study the effect of different levels of N, P, K and dates of sowing on different varieties of Jowar.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 13.8.63 ; 10.9.64 ; 13.8.65. (iv) and (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) Nil. (x) N.A. ; 17.1.65 ; N.A.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 3 varieties : V_1=Local, V_2=Co-19 and V_3=Co-20.
(2) 3 dates of sowing : D_1=27.9.63, D_2=13.8.63 and D_3=28.8.63.
(3) 3 levels of N : N_0=0, N_1=50 and N_2=100 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 : P_0=0 and P_1=70 Kg/ha.
(2) 2 levels of K_2O : K_0=0 and K_1=35 Kg/ha.

Dates of sowing for 64 : D_1=26.8.64, D_2=10.9.64 and D_3=25.9.64.
Dates of sowing for 65 : D_1=29.7.65, D_2=13.8.65 and D_3=29.8.65.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 9 main-plots/block ; 3 blocks/replication, 4 sub-plots/main-plot. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-1965. (b) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

1963

(i) 887 Kg/ha. (ii) (a) 564·2 Kg/ha. (b) 452·2 Kg/ha. (iii) Main effects of D and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	Mean
K_0	1198	1192	403	1055	929	809	501	968	1324	1023	839	931
K_1	919	1168	440	992	970	565	306	933	1288	834	851	842
Mean	1059	1180	422	1024	950	687	403	951	1306	928	845	887
P_0	1190	1179	416	1029	970	786	548	957	1279			
P_1	927	1181	427	1018	930	587	258	944	1333			
N_0	673	341	195	487	257	466						
N_1	1054	1375	424	1059	1122	671						
N_2	1449	1824	646	1525	1470	924						
V_1	905	1458	708									
V_2	1216	1358	275									
V_3	1055	724	282									

C.D. for D or N marginal means=325·4 Kg/ha.

1964

(i) 620 Kg/ha. (ii) (a) 466·6 Kg/ha. (b) 155·2 Kg/ha. (iii) Main effects of D, N and P and interaction V×P are highly significant. Main effects of V and K are significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	Mean
K_0	1344	494	112	825	766	359	384	622	944	614	686	650
K_1	1252	395	125	773	624	375	353	575	843	537	644	591
Mean	1298	444	118	799	695	367	369	598	894	575	665	620
P_0	1232	384	109	803	576	347	325	575	826			
P_1	1364	504	127	795	813	387	412	622	961			
N_0	757	274	75	429	429	248						
N_1	1089	530	175	842	635	318						
N_2	2049	528	104	1125	1021	535						
V_1	1558	590	248									
V_2	1492	536	57									
V_3	844	207	50									

C.D. for D, N or V marginal means =269·1 Kg/ha.
C.D. for P or K marginal means =62·8 Kg/ha.
C.D. for P means at the same level of V=108·8 Kg/ha.
C.D. for V means at the same level of P=386·8 Kg/ha.

1965

(i) 582 Kg/ha. (ii) (a) and (b) N.A. (iii) Main effect of K alone is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	N_0	N_1	N_2	
Av yield	843	470	433	435	561	750	
	V_1	V_2	V_3	P_0	P_1	K_0	K_1
	357	892	498	598	566	548	617

C.D. for K marginal means=49·0 Kg/ha.

Crop :- Jowar (*Main*). **Ref :- T.N. 64(224).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'IM'.**

Object :—To study the irrigation requirements under varying doses of manures of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 40 Kg/ha. of N+20 Kg/ha. of P_2O_5. (ii) Red clayey loam. (iii) 27, 28.4.64. (iv) (a) 2 ploughings, levelling and rectifying beds. (b) Direct sowing. (c) 18 Kg/ha. (d) 30 cm.×20 cm. (e) 1. (v) 120 Q/ha. of F.Y.M. (vi) Co-18. (vii) Irrigated (As per treatments). (viii) One hoeing and weeding. (ix) 26 cm. (x) 10 to 12.8.64.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : I_1=5·0, I_2=6·5 and I_3=8·0 hectare cm.

Sub-plot treatments :

3 manurial treatments : M_1=28 Kg/ha. of N+14 Kg/ha. of P, M_2=42 Kg/ha. of N+21 Kg/ha. of P and M_3=56 Kg./ha. of N+28 Kg/ha. of P.

7 irrigations were given from bore well. Manures were applied in the form of standard mixture in two split doses half as basal dose and another half as top dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 10 m.× 4·0 m. (b) 9·6 m.×3·6 m. (v) 20 cm.×20 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of earhead bug, Dusting of B.H.C. 10% was given on 30.6.69. (iii) Yield of grain and straw. (iv) (a) 1964 only repeated in 1966. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 780 Kg/ha. (ii) (a) 167·7 Kg/ha. (b) 129·1 Kg/ha. (iii) Main effect of M is significant and interaction I×M is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	734	729	616	693
I_2	859	826	794	826
I_3	934	729	799	821
Mean	842	761	736	780

C.D. for M marginal means =95·8 Kg/ha.
C.D. for I means at the same level of M=184·0 Kg/ha.
C.D. for M means at the same level of I=152·1 Kg/ha.

Crop :- Jowar (*Main*). **Ref :- .T.N. 65(29).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the optimum number of sprayings with Dithane Z-78 for the control of leaf diseases on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cholam. (c) 12·5 M. tonnes/ha. of F.Y.M. (ii) Loamy soil. (iii) 9.7.65. (iv) (a) 3 ploughings with country plough. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) Co-11. (vii) Unirrigated. (viii) 2 weedings and hoeing. (ix) 14 cm. (x) 24.10.65.

2. TREATMENTS :

Spraying with Dithane Z-78, 0·15% at 1120 litres per hectare in the following interval.

	No. of sprayings
T_0=Control (no sprayings)	
T_1=Spraying once in a week	8
T_2=Spraving once in 2 weeks	4
T_3=Spraying once in 3 weeks	4
T_4=Spraying once in 4 weeks	2
T_5=Spraying once in 6 weeks	2

The first round of sprayings was given 45 days after sowing and followed as per treatment.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×3·4 m. (b) 3·1 m.×3·1 m. (v) 30 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Average. (ii) As per treatments. (iii) Infection and yield data. (iv) (a) 1965 continuing but the number of sprayings given is not the same as 65(28), 66(8). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1857 Kg/ha. (ii) 619·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1450	1770	2082	1848	2018	1974

Leaf spot disease index

(i) 10·5. (ii) 2·1. (iii) Ttreatment differences are highly significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	19·8	6·0	5·5	7·5	9·0	15·3

C.D.=3·2 degrees.

Crop :- Jowar (*Summer*). **Ref :- T.N. 65(28).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the optimum numbers of spraying with Dithane Z-78 for the control of leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 12·5 M. tonnes/ha of F.Y.M. (ii) Loamy soil. (iii) 6.3.65. (iv) (a) 2 ploughings with country plough. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) Co.—4. (vii) Irrigated from bore wells once in 10 days. (viii) 4 weedings and hoeings. (ix) 17 cm. (x) 11.6.65.

2. TREATMENTS :

Spraying with Dithane Z-78 0·15% at 1120 litres/ha. in the following intervals.

	No. of sprayings
T_0=Control (no sprayings)	
T_1=Spraying once in a week	7
T_2=Spraying once in 2 weeks	4
T_3=Spraying once in 3 weeks	3
T_4=Spraying once in 4 weeks	2
T_5=Spraying once in 6 weeks	2

The first round of sprayings was given to all plots 45 days after sowing and followed as per treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×3·4 m. (b) 3·1 m.×3·1 m. (v) 30 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection and yield data. (iv) (a) 1965 only. Continuing but the number of sprayings given is not the same in all these years. (b) No. (c) Nil. (v) and (vi) Nil. (vii) This experiment was conducted by the Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 3503 Kg/ha. (ii) 802·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3330	3890	3276	3632	3274	3615

Leaf disease Index

(a) **Helminthosporium lurcicum**

(i) 13·6. (ii) 0·8. (iii) Treatment differences are not significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	15·0	13·0	13·3	13·4	13·8	13·5

(b) Cereospori Sorghi

(i) 9·0. (ii) 0·8. (iii) Treatment differences are highly significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	10·6	7·6	8·7	8·9	9·2	9·1

C.D.=1·2.

Crop :- Jowar (*Summer*). **Ref :- T.N. 64(82).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (ii) Brown loam. (iii) 7.3.64. (iv) (a) 3 ploughings. (b) Line sowing. (c) 20 to 32 Kg/ha. (d) 40 cm.×6 cm. (e) 1 to 2. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) CO.—18. (vii) Irrigated. (viii) 3 weedings. (ix) 8 cm. (x) 3.6.64.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Dithane Z-78 at 0·17 Kg/100 litres, T_2=Wettable Sulphur at 0·17 Kg/100 litres, T_3=Hexacop 12%, dust at 25 Kg/ha., T_4=Flit 406 at 0·17 Kg/100 litres, T_5=Sulphur dust at 25 Kg/ha., T_6=Karathane at 0·17 Kg/100 litres, T_7=Dithane M. 45 at 0·17 Kg/litres, T_8=Nickel chloride 0·01% and T_9=Bordeaux mixture 1%.

Three rounds of application at monthly intervals during the growth period of the crop were given. The first round of application was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 6·1 m.×3·1 m. (b) 5·7 m.×2·6 m. (v) 1 row alround. (vi) Yes.

4. GENERAL :

(i) Very poor. (ii) As per treatments. (iii) Infection count and grain yield. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 149 Kg/ha. (ii) 30·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	71	205	214	93	201	99	222	115	148	125

C.D.=52·3 Kg/ha.

Leaf blight infection

(i) 24·7 degrees. (ii) 3·0 degrees. (iii) Treatment differences are highly significant. (iv) Mean leaf blight infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean angle in degrees	35·5	19·0	19·0	28·9	22·4	26·2	22·0	24·7	23·5	25·6

C.D.=5·2 degrees.

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 62(61).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ragi*. (c) N.A. (ii) Brown loam. (iii) 28.7.62. (iv) (a) 3 ploughings. (b) Line sowing. (c) 8 to 12 Kg/ha. (d) 4 cm.×7 cm. (e) 1. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) Co.—1. (vii) Unirrigated. (viii) 3 weedings. (ix) 40 cm. (x) 11.12.62.

2. TREATMENTS :

14 fungicidal treatments : T_0=Control, T_1=Dithane M—22 at 0·15 Kg/100 litres, T_2=Dithane Z—78 at 0·15 Kg/100 litres, T_3=Dithane at 0·10 Kg/100 litres, T_4=Hexacop 6% dust at 25 Kg/ha., T_5=Flit—406 at 0·2 Kg/100 litres, T_6=Dithane Z—78 6% dust at 25 Kg/ha., T_7=Wettable Sulphur at 0·5 Kg/100 litres, T_8=Sulphur dust at 25 Kg/ha., T_9=Coppesan at 0·17 Kg/100 litres, T_{10}=Cop. Chloron 40 wettable at 0·17 Kg/100 litres, T_{11}=Cop. Chloron 6% dust at 25 Kg/ha., T_{12}=Nickel Chloride at 0·1 Kg/100 litres and T_{13}=Bordeaux mixture 0·5%.

T_4, T_6, T_8 and T_{11} were applied as dusts and all other treatments as foliar sprays. The fungicides were applied in 3 rounds during the growth period of the crop at monthly intervals. The first round was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×1·5 m. (b) 5·5 m.×0·9 m. (v) 1 row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection count and grain yield. (iv) (a) 1961—64 (treatment modified in 1962.) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 919 Kg/ha. (ii) 342·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	849	1054	777	706	1049	809	901
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
	829	1049	905	550	1058	1264	1070

Leaf blight infection

(i) 22·0. (ii) 4·0. (iii) Treatment differences are highly significant. (iv) Mean leaf blight infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle in degrees	29·8	16·0	19·1	19·8	21·8	22·0	20·0
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
	24·7	24·2	24·6	23·7	21·6	19·1	21·9

C.D.=5·8

Crop :- Jowar (*Summer*). **Ref :- T.N. 60(29).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical spraying on the yield and control of stem borer of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Black loam. (iii) 1.3.60. (iv) (a) 3 ploughings. (b) Line sowing. (c) 17 Kg/ha. (d) 23 cm. × 23 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) Co.—18. (vii) Irrigated. (viii) Thinning and weeding. (ix) N.A. (x) 13.6.60.

2. TREATMENTS :

All combinations of (1), (2) and (3)+2 extra treatments

(1) 3 types of chemicals : C_1=Meta systox, C_2=Systox and C_3=Pestox.
(2) 2 concentrations of chemicals : D_1=0·1% and D_2=0·2%.
(3) 2 methods of application of chemicals : M_1=As spray and M_2=Irrigation (soil drench).

Extra treatments : E_1=Only water spray and E_2=Control (no treatment).

All these treatments were applied thrice to the crop in weekly intervals from the time the pest appeared on the crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) 51·2 m. × 14·6 m. (iii) 4. (iv) (a) 7·3 m. × 7·3 m. (b) 6·4 m. × 6·4 m. (v) 46 cm. × 46 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Stem borer attack noticed. (iii) Yield of grain and infestation counts. (iv) (a) 1958—61 (Treatments are modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Infestation data N.A.

5. RESULTS :

(i) 1758 Kg/ha. (ii) 387·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_1=1685 Kg/ha. and E_2=1797 Kg/ha.

	C_1	C_2	C_3	D_1	D_2	Mean
M_1	1709	1894	1918	1707	1974	1840
M_2	1696	1623	1733	1655	1711	1683
Mean	1703	1758	1825	1681	1843	1762
D_1	1504	1716	1824			
D_2	1901	1801	1826			

Crop :- Jowar (*Summer*). **Ref :- T.N. 61(40).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of chemical spraying in yield and control of stem borer of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ragi*. (c) N.A. (ii) Loamy. (iii) 23.2.1961. (iv) (a) 3 ploughings. (b) Line sowing. (c) 17 Kg/ha. (d) 40 cm. × 20 cm. (e) 1. (v) 60 Q/ha. of Copper+22·4 Kg/ha. of A/S. (vi) Co.—18. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 18 cm. (x) 13.6.1961.

2. TREATMENTS :

All combinations of (1), (2) and (3)+2 extra treatments.

(1) 4 chemicals : C_1=Ekatin; C_2=Metasy-stox, C_3=Pestox and C_4=Systox.
(2) 2 levels of concentration : L_1=0·1% and L_2=0·2%.
(3) 2 modes of application : N_1=Foliar sprays and N_2=Soil drenches.

Extra treatments :

E_1=Control and E_2=Water spray.

All these treatments were applied thrice to the crop in weekly intervals from the time the pest appeared on the crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 5. (iv) (a) 6·4 m.× 4·6 m. (b) 5·5 m.×3·7 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of stem borer. (iii) Incidence of pest were recorded at fortnightly intervals and grain yield. (iv) (a) 1958-61. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Raw data and S.E.'s are not available in the records.

5. RESULTS :

Grain yield

(i) 1125 Kg/ha. (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	C_1	C_2	C_3	C_4	M_1	M_2	Mean
L_1	1073	1033	1435	1036	1123	1165	1144
L_2	968	1185	1314	1118	1193	1099	1146
Mean	1020	1109	1374	1077	1158	1132	1145
M_1	946	1126	1493	1068			
M_2	1094	1092	1256	1087			

Infestation

(i) 11·65 degrees. (ii) 1·21 degrees. (iii) Control vs. rest of the treatments is highly significant. Water spray vs. pesticidal treatments is significant. (iv) Mean stem borer infestation in degrees.

Control=13·31, water spray=10·20

	M_1	M_2	L_0	L_1	Mean
C_1	12·1	11·3	12·2	11·2	11·7
C_2	12·0	11·5	11·2	11·2	11·7
C_3	11·5	12·6	12·1	12·0	12·1
C_4	11·1	11·0	11·5	10·6	11·1
Mean	11·7	11·6	11·8	11·5	11·6
L_1	11·8	11·7			
L_2	11·6	11·5			

C.D. for control vs. others =1·11.

C.D. for water spray vs. pesticides =1·11.

Crop :- Cholam (*Monsoon*). **Ref :- T.N. 63(86).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of different insecticides on Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (ii) Loamy. (iii) 17.7.63. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16 Kg/ha. (d) 30 cm.×30 cm. (e) 1. (v) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Co.-1. (vii) Irrigated. (viii) 2 weedings. (ix) 26 cm. (x) 23.12.1963.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Parathion 0·025% spray, T_2=Endrin 0·2% spray, T_3=Aldrin 0·1% spray, T_4=Dieldrin 0·1% spray, T_5=B.H.C. 0·1% spray, T_6=Carbaryl 0·1% spray and T_7=B.H.C. 1% dust.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 10·4 m.×9·1 m. (b) 6·7 m.×5·5 m. (v) 4 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infestation counts and grain yield. (iv) (a) 1960-64 (Treatments modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Raw data and S.E.'s are not available in the records. Infestation was very meagre and hence no useful data could be collected.

5. RESULTS :

(i) 746 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	797	602	833	702	530	810	969	724

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(85).**

Site :- Agri. College & Res., Instt. Coimbatore. **Type :- 'D'.**

Object :– To study the effect of different insecticides on Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ragi. (c) N.A. (ii) Loamy. (iii) Feb., 1963. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16 Kg/ha. (d) 30 cm.×30 cm. (e) 1. (v) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Co.-18. vii) Irrigated. (viii) 2 weedings. (ix) 10 cm. (x) June, 1963.

2. TREATMENT :

Same as in expt. no. 63 (86) as given above.

Two rounds of dusting as well as spraying were given at monthly interval. First round was given when the crop was one month old.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×7·9 m. (b) 6·7 m.×5·5 m. (v) Two rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) As per treatments. (iii) Infestation count and yield of grain. (iv) (a) 1960-1964 (Treatments modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Raw data and S.E.'s are not available in the records. Infestation was very meagre and hence no useful data could be collected.

5. RESULTS :

(i) 590 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant, (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	588	756	509	478	578	588	731	494

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 60(79).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of different insecticides on Jowar stem borer.

BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) N.A. (ii) Loamy. (iii) 26.7.60. (iv) (a) 3 ploughings. (b) Line sowing. (c) 17 Kg/ha. (d) 40 cm.×20 cm. (e) 1. (v) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Co.-11. (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 41 cm. (x) 2.1.1961.

2. TREATMENTS :

7 insectidal treatments : T_0=Control, T_1=Parathion 0·025%, T_2=Endrin 0·02% T_3=Aldrin 0·1%, T_4=Dieldrin 0·1%, T_5=Basudin 0·1% and T_6=B.H.C. 5%.

Dusting is done with B.H.C. and foliar spraying with other insecticides. Two rounds of spraying as well as dusting were given during the growth phase of the crop at monthly interval.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 7·6 m.×7·0 m. (b) 6.1 m.×5·5 m. (v) 0·8 cm.×0·8 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infestations counts were taken at tri-weekly intervals and grain yield. (iv) (a) 1960-1964 (Treatments modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) The raw-data and S.E.'s are not available in the records. Infestation data is also not available.

5. RESULTS :

(i) 315 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	334	406	341	278	288	269	288

Crop :- Jowar (*Summer*). **Ref :- T.N. 64(90).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of different insecticides on Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) Red loam. (iii) 9.3.64. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16 Kg/ha. (d) 30 cm.×30 cm. (e) 1. (v) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Co-18. (vii) Unirrigated. (viii) 1 weeding and 1 hoeing. (ix) 8 cm. (x) 17.6.64.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Tninol, T_2=B.H.C. 0·1%, T_3=Parathion 0·02%, T_4=Endrin 0·02%, T_5=Malathion 0·05%, T_6=Carbaryl 0·1% and T_7=Dylox 0·1%.

T_1 applied as soil application in two rounds once before sowing and another a month after sowing in furrows at 1·6 gm. per metre row length. T_2 to T_7 were applied as foliar sprays in two rounds during the growth phase of the crop growing an interval of one month.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×7·9 m. (b) 6·7 m.×5·5 m. (v) 2 rows. alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infestation counts and grain yield. (iv) (a) 1960-1964 (treatments modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Raw data and S.E.'s are not available in the records. Infestation data not available.

5. RESULTS :

(i) 790 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	637	783	1096	864	783	765	783	610

Crop :- Jowar (*Main*). **Ref :- T.N. 65(25).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the efficacy of various fungicides in the control of leaf diseases.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sanhemp. (c) Not manured. (ii) Loamy soil. (iii) 9.7.65/nil. (iv) (a) 2 ploughings with country plough and ore with Guntaka. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm.×15 cm. (e) 2. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) Co-11. (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 16 cm. (x) 24.10.65.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Bord. Mixture 1·0%, T_2=Dithane 2·78 at 1 Kg./600 litres of water,T_3=Dithane M. 45 at 1 Kg/600 litres of water,T_4=Dithane M-22 at Kg/600 litres of water ; T_5=Duter 1 Kg/400 litres of water, T_6=Cuman 1 Kg/1000 litres of water, T_7=Cosan 1 Kg/2000 litres of water, T_8=Hexathene 1 Kg/600 litres and T_9=Wettable Sulphur 1 Kg/600 litres.

Three sprayings were given at monthly intervals @ 1120 litres of spraying fluid per hectare. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 48·7 m.×19·5 m. (iii) 4. (iv) (a) 4·9 m.×4·9 m. (b) 3·7 m.×2·4 m. (v) 1·2 m.×·61 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Earhead bugs was noticed. D.D.T. 1% was sprayed twices. (iii) Infection and yield data. (iv) (a) 1965 summer and main season only 1965(24). (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Heavy raining during flowering season. (vii) This experiment was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

Grain yield

(i) 144 Kg/ha. (ii) 365·5 Kg/ha. (iii) The treatment differences are highly significant. (iv) Av. yield in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1357	981	1693	2111	1828	918	1301	1690	1194	1329

C.D.=530·3 Kg/ha.

Leaf disease index

(a) Cercosphora Sorghi

(i) 11·6. (ii) 2·7. (iii) The treatment differences are highly significant. (iv) Mean infiction in degrees.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean	19·00	Severe scorching	8·00	8·25	8·25	severe scorching	12·25	12·75	11·75	12·25

C.D.=3·86

(b) Helminthosporium turcicum-total leaf disease index

(i) 4·50. (ii) 1·70. (iii) The treatment differences are not significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean	7·00	Severe scorching	3·75	5·25	3·00	Severe scorching	4·75	4·00	4·25	4·00

Crop :- Jowar (*Summer*). **Ref :- T.N. 65(24).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the efficacy of various fungicides in the control of leaf diseases.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sanhemp. (c) Not manured. (ii) Loamy soil. (iii) 6.3.65/Nil. (iv) (a) 3 ploughings. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm. × 15 cm. (e) 2. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) Co-4. (vii) Irrigated once in 10 days. (viii) 4 weedings and hoeings. (ix) 20 cm. (x) 10.6.65.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Bord mixture 1%, T_2=Dithane 2·78 at 1 Kg/600 litres of water, T_3=Dithane M. 45 at 1 Kg/600litres of water, T_4=Dithane M. 22 at 1 Kg/600 litres of water, T_5=Duter 1 Kg/400 litres, T_6=Cuman 1 Kg/100 litres, T_7=Cosan 1 Kg/2000 litres, T_8=Hexathene 1 Kg/600 litres and T_9=Wettable sulphur 1 Kg/600 litres.

Three sprayings were given at monthly interval @ 1120 litres of spraying fluid/ha. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10., (b) N.A. (iii) 4. (iv) (a) 4·9 m. × 3·7 m. (b) 4·6 m. × 3·1 m. (v) 30 cm. × 15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield and infection data. (iv) (a) 1965 summer and monsoon only. (b) No. (c) Nil. (v) and (vi) Nil. (vii) This experiment was conducted by Govt. Mycologist Coimbatore.

5. RESULTS :

(i) 3163 Kg/ha. (ii) 958·7 Kg/ha. (iii) The treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	3504	3480	2802	3735	3367	2601	3093	2659	3958	2434

Leaf disease index

(a) Helminthosporium turcicum

(i) 14·1. (ii) 0·809. (iii) The treatment differences are not significant. (iv) Mean disease index.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean	15·0	13·6	14·0	14·2	14·2	14·0	14·1	14·3	14·4	13·6

(b) Cercospora sorghi

(i) 11·19. (ii) 1·15. (iii) The treatment differences are highly significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean	13·3	12·0	9·4	11·0	11·6	10·4	10·6	11·5	10·8	11·3

C.D.=1·7.

Crop :- Jowar (*monsoon*). **Ref :- T.N. 64(83).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) N.A. (ii) Loamy soil. (iii) 1.8.64. (iv) (a) 3 ploughings. (b) Line sowing. (c) 8 to 12 Kg/ha. (d) 40 cm. × 6 cm. (e) 1. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) Co.—1. (vii) Unirrigated. (viii) 3 weedings and 3 hoeings. (ix) 45 cm. (x) 20.11.64.

2. TREATMENTS:

10 fungicidal treatments : T_0=Control,T_1=Dithane 2·78 at 0·17 Kg/100 litres, T_2=Dithane M.45 at 0·17 Kg 100 litres, T_3=Wet Sulphur at 0·17 Kg/100 litres, T_4=Sulphur dust at 25 Kg/ha. T_5=Flit 406 at 0·17 Kg/100 litres, T_6=Hexaco P12% dust at 25 Kg/ha., T_7=Kara thane at 0·17 Kg/100 litres, T_8=Nickel chloride 0·1% and T_9=Bordeaux mixture 1%.

T_4 and T_6 were applied as dusts and all other treatments as foliar spray 3 rounds of application during the growth period of the crop at monthly interval were given. The first round was given 45 days after sowing.

3. DESIGN:

(i) R B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 5·5 m.×4·9 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Disease counts and grain yield. (iv) (a) 1961 contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1025 Kg/ha. (ii) 222·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	790	1105	1088	1126	1013	920	1097	866	1303	941

Leaf blight infection

(i) 17·6 degrees. (ii) 1·1 degrees. (iii) Treatment differences are highly significant. (iv) Mean leaf infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean angle in degrees	18·9	15·3	18·4	17·4	16·9	18·7	17·5	17 7	17·9	16·9

C.D.=1·6

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 61(38).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (iii) Loamy. (iii) 30.8.61. (iv) (a) 3 ploughings. (b) Line sowing. (c) 8 to 12 Kg/ha. (d) 40 cm.×7 cm. (e) 1. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) Co.—1. (vii) Irrigated. (viii) 4 weedings. (ix) 27 cm. (x) 28.12.61.

2. TREATMENTS :

12 fungicidal treatments : T_0=Control, T_1=Dithane Z—78 at 0·15 Kg/100 litres, T_2=Flit 406 at 0·2 Kg/100 litres, T_3=Sulphur dust at 67 Kg/ha., T_4=Ferbam at 0·5 Kg/100 litres, T_5 =Ziram at 0·2 Kg/100 litres, T_6=Micro cop. at 0·25 Kg/100 litres, T_7=Colloidal Copper at 0·25 Kg/100 litres, T_8=Wettable Sulphur at 0·5 Kg/100 litres, T_9= Dithane D. 14 at 0·5 Kg+Zn SO_4 at 0·1 Kg/100 litres, T_{10}=Bordeaux mixture 1% and T_{11}=Parry cop at 0·25 Kg/100 litres.

All treatments except T_3 are sprayed, Sulphur dusting is done in T_3 in three rounds. First application was given 45 days after sowing and subsequent application at monthly interval.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) and (b) 6·1 m.×1·5 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) As per treatments. (iii) Infection count and grain yield. (iv) (a) 1961—contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1286 Kg/ha. (ii) 349·1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1319	1677	1469	1346	1168	1329
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	935	949	1476	1552	1051	1166

C.D.=404·5 Kg/ha.

Leaf spot disease infection data

(i) 39·87. (ii) 5·03. (iii) Treatment differences are highly significant. (iv) Mean leaf spot infection in degrees.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5
Mean infection in degrees	50·3	43·6	38·4	43·2	41·8	39·1
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	37·6	35·7	40·3	40·0	31·8	36·6

C.D.=5·81.

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 63(79).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 200 Kg/ha. of A/S+13 Kg/ha. of Super. (ii) Loamy soil. (iii) 28.7.63. (iv) (a) 3 ploughings. (b) Line sowing. (c) 8 to 12 Kg/ha. (d) 40 cm.×7 cm. (e) 1 to 2. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) CO—1. (vii) Unirrigated. (viii) 4 weedings and 4 hoeings. (ix) 19 cm. (x) 11.12.63.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control. T_1=Dithane M. 22 at 0·15 Kg/100 litres, T_2=Dithane Z. 78 at 0·15 Kg/100 litres, T_3=Dithane M. 45 at 0·15 Kg/100 litres, T_4=Hexa Cop. dust at 25 Kg/ha , T_5=Flit 4·06 at 0·2 Kg/100 litrers, T_6=Sulphur dust at 25 Kg/ha., T_7=Nickel Chloride dust at 0·1 Kg/100 litres, T_8=Bordeaux mixture 1% and T_9=Bordeaux mixture 0·5%.

T_4 and T_6 were applied as dusts and all other treatments as foliar sprays. Three rounds of application were given at monthly intervals during the growth period of crop. The first round was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 6·1m.×1·8 m. (b) 5·5 m.×1·2 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Disease counts and grain yield. (iv) (a) 1961 contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1255 Kg/ha. (ii) 164·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Tretment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	725	1325	1725	1553	949	1566	1042	1072	1569	1020

C.D.=337·5 Kg/ha.

Leaf blight infection data

(i) 26·5 degrees. (ii) 1·5 degrees. (iii) Treatments differences are highly significant, (iv) Mean leaf blight infection in degrees.

Treatment	T_0	T_1	T_2	T_9	T_4	T_5	T_6	T_7	T_8	T_9
Mean angle	28·4	26·1	21·3	25·8	25·9	26·8	27·7	26·7	27·5	28·7

C.D.=2·52.

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(78).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against leaf diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (ii) Loamy. (iii) 23.2.63. (iv) (a) 3 ploughings. (b) Line sowing. (c) 20 to 32 Kg/ha. (d) 40 cm.×60 cm. (e) 1 to 2. (v) 225 Kg/ha. of A/S+135 Kg/ha. of Super. (vi) Co.—18. (vii) Irrigated. (viii) 3 weedings and 3 hoeings. (ix) 11 cm. (x) 1.6.63.

2. TREATMENTS :

12 fungicidal treatments : T_0=Control, T_1=Diathane M—22 at 0·15 Kg/100 litres, T_2=Diathane Z—78 at 0·15 Kg/100 litres, T_3=Diathane D—14 at 0·1 Kg/100 litres, T_4=Hexa cop 4% dust at 25 Kg/ha., T_5=Hexa cop 12% dust at 25 Kg/ha., T_6=Flit 406 at 0·2 Kg/100 litres, T_7=Wettable sulphur at 0·2 Kg/100 litres, T_8=Sulphur dust at 25 Kg/ha., T_9=Nickel chloride at 0·1 Kg/100 litres, T_{10}=Coppersan at 0·17 Kg/100 litres and T_{11}=Bordeaux mixture 0·5%.

T_4, T_5 and T_8 were applied as dusts and all others as foliar sprays. Three rounds of application at monthly intervals during the growth period of the crop were given. The first round of application was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×1 8 m. (b) 5·5 m.×1·2 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Disease counts and grain yield. (iv) (a) 1961—contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 934 Kg/ha. (ii) 555.4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Av. yield	648	731	891	748	964	918	1189	1413	923	1209	490	1080

Leaf blight infection data

(i) 25·8 degrees. (ii) 1·8 degrees. (iii) Treatment differences are significant. (iv) Mean leaf blight infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	27·9	24·9	23·6	23·8	26·2	25·8
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	26·5	26·5	26·8	25·8	26·5	25·5

C.D.=2·56.

Crop :- Jowar (*Summer*). **Ref :- T.N. 62(60).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable measure against the leaf diseases on Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) N.A. (ii) Brown loam. (iii) 15.2.62. (iv) (a) 2 ploughings with country plough and one with *guntaka*. (b) Line sowing. (c) 20 to 30 Kg/ha. (d) 40 cm.×6 cm. (e) 1. (v) 225 Kg/ha. of A/S+140 Kg/ha. of Super. (vi) Co.—18. (vii) Irrigated. (viii) 2 weedings. (ix) 16 cm. (x) 22.5.62.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 5 fungicides : C_1=Bordeaux mixture 1%, C_2=Micro cop 0·33%, C_3=Flit 406 at 0·33%, C_4=Zinele 0·16% and C_5=Manele 0·16%.

(2) 2 intervals of spraying : I_1=Once in a week and I_2=Once in two weeks.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×6·1 m. (b) 5·5 m.×5·5 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaf diseases were observed. (iii) Infection counts and grain yield. (iv) (a) 1961—contd. (Treatments modified). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Infection counts could not be recorded in plots sprayed witn Bordeaux mixture and Micro cop since all the plants were severely scorched by the spray infury caused by the copper sprays.

5. RESULTS :

(i) 308 Kg/ha. (ii) 96·2 Kg/ha. (iii) Main effect of C and interaction C×I are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=375 Kg/ha.

	C_1	C_2	C_3	C_4	C_5	Mean
I_1	243	50	370	404	400	293
I_2	281	154	278	326	512	310
Mean	262	102	324	365	456	302

C.D. for C marginal means =97·9 Kg/ha.
C.D. for the body of C×I table =138·5 Kg/ha.

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(172), 64(178).**

Site :- Agri. College and Res. Instt.,
Coimbatore. **Type :- 'D'.**

Object :—To determine the correct intervals at which fungicide Dithane Z—78 renders effective control of the leaf blight and leaf spot diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) N.A, (ii) Loamy. (iii) 23.9.1963 ; 6.3.1964. (iv) (a) 3 ploughings with country plough. (b) Line sowing. (c) 13 Kg/ha. (d) 40 cm. between rows. (e) 2. (v) 45 Kg/ha. of N as A/S+ 22·5 Kg/ha. of P_2O_5 as Super. (vi) Co.—18. (vii) Irrigated. (viii) 1 weeding+1 hoeing. (ix) 11 cm., 8 cm. (x) 1.6.1963 ; 5.6.1964.

2. TREATMENTS :

6 intervals of spraying : $T_1=1$, $T_2=2$, $T_3=3$, $T_4=4$, $T_5=5$ and $T_6=6$ weeks.
Dithane Z—78 at 100 gm./66 litres were sprayed as per treatments. The first spraying was done 45 days after sowing and the subsequent sprayings done according to treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. for 63(172) 4·6 m×3·1 m. for 64(178). (b) 6·1 m.× 1·5 m. for 63(172) ; 2·1 m.×1·5 m. for 64(178). (v) N.A. for 63(172) ; 122 cm.×76 cm. for 64(178). (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. Incidence of leaf spot disease was very strong for 64(178). (iii) Infestation count and yield of grain. (iv) (a) 1962 to 1964. (b) No. (c) Results of combined analysis given under 5. (v) N.A. (b) Nil. (vi) Nil. (vii) Expt. for the year 1962 is N.A. Error variances are heterogeneous, Treatments×years interaction is present.

5. RESULTS :

(i) 1452 Kg/ha. (ii) 570·9 Kg/ha. (based on 5 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1974	1854	1397	1383	1185	919

Av. yield of grain in Kg/ha.

Years	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E./plot
1963	760	666	822	768	679	723	N.S.	736	214·0
1964	3188	3042	1973	1999	1692	1115	*	2168	460·7
Mean	1974	1854	1397	1383	1185	919	N.S.	1452	570·9

Crop :- Jowar (*Monsoon*). **Ref :- T.N. 62(123), 63(173), 64(179).**

Site :- Agri. College and Res. Instt.,
Coimbatore. **Type :- 'D'.**

Object : - To determine the correct interval at which fungicide Dithane Z—78 renders effective control of the leaf blight and leaf spot diseases of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) N.A. (ii) Loamy soil. (iii) 28.7.62 ; 24.7.63 ; 1.8.64. (iv) (a) 3 ploughings with country plough. (b) Line sowing. (c) 13 Kg/ha. (d) 40 cm. between rows. (e) 2. (v) 225 Kg/ha. of A/S+168 Kg/ha. of Super for 62(123) ; 45 Kg/ha. of N as A/S+22·5 Kg/ha. of P_2O_5 as Super for others. (vi) Co.—1. (vii) Un-irrigated. (viii) 1 weeding+1 hoeing for 63(173) ; 2 to 3 weedings for others. (ix) 38 cm., 16 cm., 46 cm. (x) 11.12.1962 ; 12.12.1963 ; 4.12.1964.

2. TREATMENTS:

Same as in expt. no. 63(172), 64(178) conducted at Coimbatore on page 250.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6 for 62(123) ; 4 for others. (iv) (a) 4·6 m.×3·1 m. for 63(173) ; N.A. for others. (b) 6·1 m.×1·5 m. for 62(123) ; 2·1 m.×1·5 m. for 63(173) ; 5·5 m.×4·9 m. for 64(179). (v) 120 cm.×76 cm. for 63(173) ; N.A. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infestation count and yield of grain. (iv) (a) 1962—1964. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous, Treatments×years interaction is present.

5. RESULTS :

(i) 787 Kg/ha. (ii) 275·9 Kg/ha. (based on 10 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	889	805	838	769	735	684

Av. yield of grain in Kg/ha.

Years	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E./plot.
1962	835	641	863	836	796	825	N.S.	800	157·5
1963	479	408	201	161	112	98	**	243	82·4
1964	1380	1448	1439	1278	1265	1059	N.S.	1312	287·2
Mean	889	805	838	769	735	684	N.S.	787	275·9

Crop :- Jowar (*Summer*).

Ref :- T.N. 61(42), 62(64).

Site :- Agri. College and Res. Instt.,
Coimbatore.

Type :- 'D'.

Object :—To study the effect of different insecticides on Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) 60 Q/ha. of F.Y.M. for 61(42) ; N.A. for 62(64). (ii) Loamy. (iii) 4.3.1961 ; 15.2.1962. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16 Kg/ha. (d) 40 cm.×20 cm. for 61(42) ; 40 cm.×25 cm. for 62(64). (e) 1. (v) 60 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Co.—18. (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 22 cm., 15 cm. (x) 21.6.1961 ; 26.5.1962.

2. TREATMENTS :

7 insecticidal treatments : T_0=Control, T_1=Parathion 0·025%, T_2=Endrin 0·02%, T_3=Aldrin 0·1%, T_4=Dieldrin 0·1%, T_5=B.H.C. 0·1% and T_6=B.H.C. 5%.

Treatments T_1 to T_5 were applied as foliar sprays and T_6 as dust. Two rounds of spraying as well as dusting at monthly intervals were given during the growth phase of the crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 10·4 m.×9·1 m. (b) 6·7 m.×5·5 m. (v) 182 cm.×182 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield of grain and infestation count. (iv) (a) 1960—1964 (Treatments modified in 1960, 63 and 64). (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances of individual years are N.A. Treatments × years interaction is used as error for testing treatments.

5. RESULTS :

(i) 1948 Kg/ha. (ii) 248·4 Kg/ha. (based on 6 d.f. made up of Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1678	2140	1905	1886	1869	2248	1909

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E. /plot
1963	2156	2895	2649	2402	2322	3126	2726	N.S.	2611	N.A.
1964	1201	1384	1161	1370	1416	1370	1092	N.S.	1285	N.A.
Mean	1678	2140	1905	1886	1869	2248	1909	N.S.	1948	248·4

Crop :- Jowar (*Summer*). **Ref :- T.N. 65(6).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against leaf spot disease of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 112 Kg/ha. of Am. Sulphate+12·5 tonnes/ha. F.Y.M. (ii) Black soil. (iii) 5.4.1965. (iv) (a) 3 ploughings. (b) Line sowing. (c) 2½ Kg/ha. (d) 45 cm. × 23 cm. (e) 1. (v) 112 Kg/ha. of A/S+89 Kg/ha. P_2O_5+125 Q/ha. of F.Y.M. (vi) K_2. (vii) Irrigated. (viii) Weeding, hoeing and thinning. (ix) 17 cm. (x) 5.7.1965.

2. TREATMENTS :

8 insectcidal treatments : T_0=Control, T_1=Sevin dust 30 Kg/ha., T_2=Sulphur dust 30 Kg/ha., T_3=Fytolan 0·1% spray, T_4=Fytolan 0·25% spray, T_5=Dithane 0·15% spray, T_6=Wet Sulphur 1% spray and T_7=Bordeaux Mixture 1% spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 5·4 m. × 2·7 m. (b) 4·5 m. × 2·7 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaf spot disease. (iii) Disease count and grain yield. (iv) (a) 1963—contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3996 Kg/ha. (ii) 654·1 Kg/ha. (iii) The treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	4105	3899	4722	4496	3560	3879	3652	3652

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(157).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :— To evolve a suitable control measure against Jowar earhead bugs.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Jowar*. (b) Cotton. (c) N.A. (iii) Red loam. (iii) 10.4.63. (iv) 3 ploughings. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm. × 30 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) K.-2. (vii) Irrigated. (viii) Weeding, hoeing, gap filling, and thinning (ix) 18 cm. (x) 9.7.1963.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=Aldrin 5%, T_2=Lindane 5%, T_3=Toxaphene 10%, T_4=B.H.C. 10% and T_5=D.D.T. 5%.

Two rounds of treatments were dusted at fortnightly intervals commencing from the emergence of earheads.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 4·3 m. × 4·3 m. (b) 3·7 m. × 3·7 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of earhead bug and grain yield. (iv) (a) 1963-contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1918 Kg/ha. (ii) 212·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1773	2213	1963	1884	1841	1831

Infestation data

(i) 4·7. (ii) 2·3. (iii) Treatment differences are highly significant. (iv) Mean population of earhead bugs.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean population	12·8	2·8	3·8	4·0	2·0	2·5

C.D. = 3·53

Crop :- Jowar (*Summer*). **Ref :- T.N. 64(165).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :— To evolve a suitable control measure against Jowar earhead bug.

1. BASAL CONDITIONS :

(i) (a) Cotton-Chilles. (b) Cotton. (c) N.A. (ii) Red loam. (iii) 15.4.64. (iv) (a) 3 ploughings. (b) Line sowing. (c) 9 Kg/ha. (d) 45 cm. × 30 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+32 Kg/ha. of lime+50 Kg/ha. of Super. (vi) K.-2. (vii) Irrigated. (viii) Weeding, hoeing, gap filling and thinning. (ix) 41 cm. (x) July, 1964.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=B.H.C. 10%, T_2=D.D.T. 5%, T_3=Toxaphene 10%, T_4=Aldrin 5% and T_5=Conbaryl 10%.

Two rounds of treatments were dusted at 10 days intervals from the emergence of earheads.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·7 m. × 3·7 m. (v) One row all around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of earhead bugs and grain yield. (iv) (a) 1963-contd. (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1576 Kg/ha. (ii) 270·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1606	1719	1533	1654	1496	1445

Infestation data (In terms of population of earhead bugs)

(i) 16·6. (ii) 13·8. (iii) Treatment differences are highly significant. (iv) Mean population of earhead bugs.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean population	41·8	18·8	4·8	12·0	12·5	9·5

C.D.=20·8

Crop :- Jowar (*Summer*). **Ref :- T.N. 63(156).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :— To evolve a suitable control measure against Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Cholam.* (b) Cotton. (c) N.A. (iii) N.A. (ii) Red loam. (iii) 10.4.1963. (iv) (a) 3 ploughings. (b) Line sowing. (c) 10 Kg/ha. (d) 45 cm.×30 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) K.-2 (Vellai-cholam). (vii) Irrigated. (viii) Weeding, hoeing, gap filling and thinning. (ix) 18 cm. (x) 8.7.63.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=Endrin 0·02%, T_2=Dieldrin 0·1%, T_3=Carbaryl 0·1%, T_4=Parathion 0·025% and T_5=B.H.C. 0·05%.

Two rounds of the above treatments were sprayed at fortnightly intervals commencing from three weeks after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×4·3 m. (b) 6·1 m.×3·7 m. (v) One row all round. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of stemborers and grain yield. (iv) (a) 1963 only. (b) and (c) —. (v) and (vi) Nil. (vii) Replication wise data of infestation are not available and hence analysis cannot be done.

5. RESULTS :

(i) 1549 Kg/ha. (ii) 148·3 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1384	1740	1699	1507	1496	1468

C.D.=223·3 Kg/ha.

Stem borer

(i) 3·5. (ii) and(iii) N.A. (iv) Mean percentage of stem borer incidence.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean percentage	7·5	3·1	3·3	2·4	2·2	2·5

Crop :- Jowar (*Summer*). **Ref :- T.N. 64(167).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Cotton-Jowar-Chillies. (b) Cotton. (c) 45 Kg/ha. of N as A/S. (ii) Red loam. (iii) 15.4.1964. (iv) (a) 3 ploughings. (b) Line sowing. (c) 10 Kg/ha. (d) 30 cm. × 30 cm. (e) 1. (v) 250 Q/ha. of F.Y.M. +32 Kg/ha. of Urea+50 Kg/ha. of Super. (vi) K.-2 (*Vellai cholam*). (vii) Irrigated. (viii) Weeding, hoeing gap filling and thinning. (ix) 55 cm. (x) July, 1964.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=B.H.C. 0·05% spray, T_2=Endrin 0·02% spray, T_3=Dieldrin 0·1% spray, T_4=Carbaryl granules at 15 gms per 6·1 metre row length, T_5= Parathion 0·025% spray, T_6=Endrin granules at 15 gms per 6·1 metre row length and T_7=Carbaryl 0·1% spray.

Two rounds of treatments were given at 15 days intervals commencing from a month after sowing Treatments T_4 and T_6 were applied as per dose above in the leaf whorls of each plant.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 4·9 m. × 3·7 m. (v) One row all around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of stem borer and grain yield. (iv) (a) 1964 only. (b) and (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 1713 Kg/ha. (ii) 428·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	1615	1914	1837	1791	1733	1690	1668	1457

Stem borer

(i) 15·9 degrees. (ii) 4·3 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of stem borer in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean	26·4	14·9	13·5	7·3	11·6	21·9	13·6	18·4

C.D.=6·27

Crop :- Jowar (*Summer*). **Ref :- T.N. 65(8).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) MC_2 Cotton. (c) 125 Q/ha. of F.Y.M.+112 Kg/ha. of Super+28 Kg/ha. of Mur. of Pot. (ii) Red loam. (iii) 16.4.65. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16·8 Kg/ha. (d) 45 cm. × 20 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+Urea at 100 Kg/ha.+Super at 112 Kg/ha. (vi) K-2 Vellai *cholam*. (vii) Irrigated. (viii) 3 weedings. (ix) 11 cm. (x) 16.7.65.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Endrin grannules, T_2=Hepta chlor grannules, T_3=Carbaryl 0·1% spray, T_4=Endrin 0·02% spray, T_5=B.H.C. 0·05% spray, T_6=Dieldrin 0·1% spray, T_7=Trithion 0·06% spray and T_8 =Parathion 0·025% spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 3·8 m.×3·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Stem borer. (iii) Disease counts and grain yield. (iv) (a) 1965—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3258 Kg/ha. (ii) 668·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Jowar* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	2858	2955	3576	3408	3565	3647	2930	3414	2969

Crop :- Jowar (*Summer*).

Ref :- T.N. 65(9).

Site :- Reg. Res. Stn., Koilpatti.

Type :- 'D'.

Object :—To evolve a suitable control measure against Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) MC_2 Cotton. (c) 125 Q/ha. of F.Y.M.+112 Kg/ha. of Super+28 Kg/ha. of Mur. of Pot. (ii) Red loam. (iii) 16.4.65. (iv) (a) 3 ploughings. (b) Line sowing. (c) 16·8 Kg/ha. (d) 45 cm.×20 cm. (e) 1. (v) 12·5 tonnes/ha. of F.Y.M.+Urea 100 Kg/ha. +Super 112 Kg/ha. (vi) K-2 *Vellai Cholam.* (vii) Irrigated. (viii) 3 weedings. (ix) 18 cm. (x) 16.7.65.

2. TREATMENTS :

T_0=Control, T_1=Carbaryl 10% dust, T_2=B.H.C. 10% dust, T_3=Malathion 4% dust, T_4=Dieldrin 5% dust and T_5=Trithion 2% dust.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 3·8 m.×3·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Stem borer. (iii) Disease counts and grain yield. (iv) (a) 1965=contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3867 Kg/ha. (ii) 473·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Jowar* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3479	4042	4245	3620	4038	3780

Crop :- Jowar (*Summer*).

Ref :- T.N. 63(40), 64(48).

Site :- Reg. Res. Stn., Koilpatti.

Type :- 'D'.

Object :—To evolve a suitable control measure against leaf spot disease of Jowar.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 112 Kg/ha. of A/S+125 Q/ha. of F.Y.M. (ii) Black soil. (iii) 10.4.63, 15.4.64. (iv) (a) 3 ploughings. (b) Sowing in lines. (c) 2·5 Kg/ha. (d) 45 cm.×23 cm. (e) 1 (v) 112 Kg/ha. of A/S+89 Kg/ha. of Super+125 Q/ha. of F.Y.M. (vi) K-2 (vii) Irrigated. (viii) Weeding, hoeing and thinning. (ix) 23 cm. in 63, 54 cm. in 64. (x) 10.7.63, 15.7.64.

2. TREATMENTS :

Main-plot treatments :

2 frequencies of applications : M_1=Once in a fortnight and M_2=Once in a month.

Sub-plot treatments :

4 fungicides : S_0=Control, S_1=Dithane 0·15%, S_2=Wet sulphur 1% and S_3=Sulphur dust 30 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 5·4 m.× 2·7 m. (b) 4·5 m.×2·7 m. (v) 45 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaf spot disease. (iii) Disease count and grain yield. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous therefore results for individual years are presented under 5. Results.

5. RESULTS :

63(40)

(i) 2819 Kg/ha. (ii) (a) 356·1 Kg/ha. (b) 436·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2776 Kg/ha.

	S_1	S_2	S_3	Mean
M_1	2663	2853	2691	2736
M_2	2656	2995	3146	2932
Mean	2659	2924	2919	2834

64(48)

(i) 2457 Kg/ha. (ii) (a) 359·3 Kg/ha. (b) 267·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2346 Kg/ha.

	S_1	S_2	S_3	Mean
M_1	2497	2339	2572	2469
M_2	2531	2435	2586	2517
Mean	2514	2387	2579	2493

Crop :- Bajra. **Ref :- T.N. 61(34), 62(48), 63(57).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :—To fix up the optimum and economic fertilizer for hybird Bajra.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut for 62(48); Cotton for others. (c) 125 Q/ha. of compost+56 Kg/ha. of A/S+140 Kg/ha. of Super+56 Kg/ha. of K_2O for 62(48); 125 Q/ha. of F.Y.M. for others. (ii) Sandy loam. (iii) 13.9.61; 21.8.62; 24.10.63. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 7·5 Kg/ha. (d) 45 cm.×23 cm. (e) 1. (v) 251 Q/ha. of F.Y.M. (vi) X—3. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 39 cm., 32 cm.; 19 cm. (x) 8.12.61, 19.11.62, 23.1.64.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=225 Kg/ha. of A/S, T_2=337 Kg/ha. of A/S, T_3=225 Kg/ha. of A/S+140 Kg/ha. of P_2O_5 as Super, $T_4=T_3$+37 Kg/ha. of K_2O, T_5=337 Kg/ha. of A/S+140 Kg/ha. of P_2O_5 as Super and $T_6=T_5$+37 Kg/ha. of K_2O.

Manures applied in two equal doses.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 11·9 m.×4·3 m. (b) 11·4 m.×3·4 m. for 63(57); 40·5 sq. m. for others. (v) 23 cm.×46 cm. for 63(57); N.A. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—63. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii)/ Error variances are homogeneous. Treatments ×years interaction is absent.

5. RESULTS :

(i) 419 Kg/ha. (ii) 156·4 Kg/ha. (based on 102 d.f. made up of Treatments×years interaction and pooled errors). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	343	366	404	455	439	496	429

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E./plot
1961	168	205	249	267	224	187	215	N.S.	216	135·6
1962	411	417	482	467	504	710	570	N.S.	509	188·8
1963	452	478	483	631	591	591	504	N.S.	533	137·1
Mean	343	366	404	455	439	496	429	N.S.	419	156·4

Crop :- Bajra (*Main*). **Ref :- T.N. 60(131).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To fix the optimum and economic dose of organic and inorganic manures for Bajra.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Sandy loam. (iii) 24.9.1960. (iv) (a) 3 ploughings. (b) Line sowing. (c) 10 Kg/ha. (d) 45 cm.×23 cm. (e) 1. (v) As per treatments. (vi) Cumbu X-3. (vii) Irrigated. (viii) Hoeing and weedings. (ix) 26 cm. (x) 16.12.1960.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=45 Kg/ha. of N as A/S, T_2=67 Kg/ha. of N as A/S, T_3=45 Kg/ha. of N as A/S+22 Kg/ha. of P_2O_5 as Super, T_4=45 Kg/ha. of N+22 Kg/ha. of P_2O_5+22 Kg/ha. of K_2O as mur. pot., T_5=67 Kg/ha. of N+22 Kg/ha. of P_2O_5 and T_6=67 Kg/ha. of N+22 Kg/ha. of P_2O_5+22 Kg/ha. of K_2O.

250 Q/ha. of compost was applied to all plots as basal dressing with last ploughing. A/S in applied ½ as basal dressing ½ after 25 days of planting. Super and potash were applied as basal dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 11·6 m.×4.3 m. (b) 11·0 m.×3·8 m. (v) 30 cm.×23 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 1091 Kg/ha. (ii) 460·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	727	1226	1194	1183	955	1064	1291

Crop :- Bajra **Ref :- T.N. 62(62), 63(82).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :— To evaluate the comparative efficiency of different fertilizers for Bajra.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 62 (62) ; *Jowar* for 63 (82). (c) N.A. (ii) Red loamy. (iii) 4.10.62 ; 30.9.63. (iv) (a) 4 ploughings. (b) Broadcasting. (c) 7·5 Kg/ha. (d) 50 cm. × 20 cm. (e) 1. (v) 254 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.-3 (medium). (vii) Irrigated. (viii) 2 weedings+2 thinnings (iv) 34 cm., 21 cm. (x) 22.1 1963 ; 7.1.1964.

2. TREATMENTS :

Main-plot treatments :

3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.

Sub-plot treatments :

All coimbinations of (1) and (2)+a control.

(1) 3 levels of N : $N_1=22{\cdot}4$, $N_2=33{\cdot}6$ and $N_3=44{\cdot}8$ Kg/ha.

(2) 3 times of placements of N : T_1=At planting, T_2=25 to 30 days after planting and $T_3=\frac{1}{2}$ at planting+$\frac{1}{2}$ at 25 to 30 days after planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 10 sub-plots/main-plot. (b) 26 m. × 18 m. (iii) 6. (iv) (a) 6·0 m. × 2·6 m. (b) 5.2 m. × 1·6 m. (v) 40 cm. × 50 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-1963. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Since sub-plot error variances are heterogeneous therefore results of individual years are presented under 5. Results.

5. RESULTS :

62(62)

(i) 518 Kg/ha. (ii) (a) 274·6 Kg/ha. (b) 123·6 Kg/ha. (iii) Main effect of N and 'Control *vs.* others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=408 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	Mean
N_1	441	490	482	481	472	461	471
N_2	568	546	486	514	532	553	533
N_3	602	599	556	571	571	616	586
Mean	537	545	508	522	525	543	530
T_1	570	538	458				
T_2	480	551	544				
T_3	561	546	523				

C.D. for N marginal means=47·1 Kg/ha.

C.D. for 'Control *vs.* others'=60·9 Kg/ha.

63(82)

(i) 445 Kg/ha. (ii) (a) 110·8 Kg/ha. (b) 73·8 Kg/ha. (iii) Main effects of T and N are highly significant. 'Control *vs.* others' and interaction $S \times N \times T$ are significant. (iv) Av. yield of grain in Kg/ha.

Control=412 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	Mean
N_1	484	416	443	457	434	453	448
N_2	432	443	473	480	382	486	449
N_3	476	407	464	512	325	511	449
Mean	464	422	460	483	380	483	449
T_1	504	431	514				
T_2	395	364	382				
T_3	494	472	484				

C.D. for T or N marginal means =28·1 Kg/ha.
C.D. for 'Control *vs.* others' =36·3 Cg/ha.

Crop :- Bajra (*Monsoon*) **Ref :- T.N. 63(81).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :— To evaluate the comparative efficiency of different fertilizers.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Ragi. (c) N.A. (ii) Red loamy. (iii) 25.3.1963. (iv) (a) 4 ploughings. (b) Broadcasting. (c) 7½ Kg/ha. (d) 20 cm.×50 cm. (e) 1. (v) 254 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.-4. (early). (vii) Irrigated. (viii) Weeding, thinning and drawing lines near the plants to apply the 2nd dose of ferlitizers. (ix) 16 cm. (x) 28.6.63.

2. TREATMENTS: 3. DESIGN and 4. GENERAL:

Same as in expt. no. 62 (62), 63 (82) on page 259.

5. RESULTS:

(i) 1300 Kg/ha. (ii) (a) 346·9 Kg/ha. (b) 246·9 Kg/ha. (iii) "Control *vs.* others" and main effect of N are significant. (iv) Av. yield of grain in Kg/ha.

Control=1169 Kg/ha.

	S_1	S_2	S_3	P_1	P_2	$_3$	Mean
N_1	1204	1263	1269	1182	1264	1290	1245
N_2	1342	1377	1281	1313	1397	1289	1333
N_3	1338	1451	1310	1342	1397	1360	1366
Mean	1295	1364	1287	1279	1353	1313	1315
P_1	1253	1356	1228				
P_2	1298	1429	1332				
P_3	1333	1306	1300				

C.D. for N marginal means =93·6 Kg/ha.
C.D. for 'Control vs. others' means=120·8 Kg/ha.

Crop :- Bajra (*Main*). **Ref :- T.N. 62(17), 63(26), 64(27).**
Site :- Reg. Res. Stn., Koilpatti. **Type :- 'M'.**

Object :— To study the effect of N, P and K alone and in combinations on the yield of cumbu.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereal. (b) Cotton. (c) Urea at 22·4 Kg/ha. of N and compost at 127 Q/ha. (ii) Black soil. (iii) 16.10.1962 ; 5.11.1963 ; 29.10.1964. (iv) (a) 2 ploughings with country plough and working guntaka once. (b) Hand sowing with *goru seed* drill. (c) 4 Kg/ha. (d) 46 cm.×15 cm. (e) 1. (v) Nil. (vi) K.-1 (medium). (vii) Unirrigated. (viii) Thinning, interculturing and 2 hand weedings. (ix) 36 cm. ; 33 cm. ; 40 cm. (x) 24.1.63 ; 7.2.64 ; 19.1.65.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 3 levles of N as A/S : N_0=0, N_1=22·4 and and N_2=44·8 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

Treatments applied at the time of sowing in the line of sowing.

3. DESIGN :

(i) 3 confd. (NPK totally confounded). (ii) (a) 9 plots/block ; 3 blocks/replication. (b) 24·7 m.×13·7 m. (iii) 4. (iv) (a) 13·7 m.×2·7 m. (b) 13·7 m.×1·8 m. (v) 46 cm. on either side along breadth. (vi) Yes.

4. GENERAL :

(i) Slightly affected by drought. (ii) Light incidence of green ear. (iii) No. of leaves and ears plant height and yield of grain. (iv) (a) 1962-64. (b) No. (v) and (vi) Nil. (vii) Error variances are homogeneous Treatments×years interaction is present.

5. RESULTS :

(i) 538 Kg/ha. (ii) 145·1 Kg/ha. (based on 36 d.f. made up of interactions of various components of treatments with years). (iii) Main effects of P and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	Mean
P_0	397	490	517	466	461	477	468
P_1	452	595	648	582	535	578	565
$_2$	466	91	689	587	576	583	582
Mean	438	559	618	545	524	546	538
K_0	464	566	606				
K_1	431	542	599				
K_2	419	568	650				

C.D. for P or N marginal means=40·1 Kg/ha.

Year	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig	G.M.	S.E./plot
62	399	561	594	*	501	506	547	N.S.	508	500	546	N.S.	518	93·3
63	436	547	634	*	427	588	602	S.	563	501	553	*	539	104·0
64	480	568	627	*	476	601	598	S.	566	571	538	N.S.	558	103·8
Av.	438	559	618	**	468	565	582	**	545	524	546		538	145·1

Crop :- Bajra (*Winter*). **Ref :- T.N. 61(12), 62(10), 63(16), 64(19).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'M'.**

Object :—To find out the response of rainfed Bajra to the application of N.

1. BASAL CONDITIONS :

(i) (a) Cotton—Cereal. (b) Cotton. (c) Urea at 22·4 Kg/ha. of N and compost at 127 Q/ha. (ii) Black soil. (iii) 23.10.61; 16.10.62; 4.11.63; 29.10.64. (iv) (a) 2 ploughings with country plough and one guntaka working. (b) Line sowing. (c) 4 Kg/ha. (d) 46 cm.×15 cm. (e) 1. (v) Nil. (vi) K—1 (medium). (vii) Unirrigated. (viii) Thinning, interculture with country plough and two hand weedings. (ix) 37 cm.; 36 cm.; 40 cm.; 40 cm. (x) 27.1.62; 24.1.63; 10.2.64; 19.1.65.

2. TREATMENTS :

4 manurial treatments : M_0=No manure, M_1=Compost at 129 Q/ha., M_2=A/S at 22·4 Kg/ha. of N, and M_3=Compost at 64·5 Q/ha.+A/S at 11·2 Kg/ha. of N.

Compost spread before levelling the beds; A/S applied in line of sowing before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 13·7 m.×2·7 m. (b) 13·7 m.×1·8 m. (v) 46 cm. on either side along breadth. (vi) Yes.

4. GENERAL :

(i) Slightly affected by continuous drought after sowing. (ii) Slight incidence of green ear for 61(12); Nil for others. (iii) Tillers count, height of plants and yield of grain. (iv) (a) 1961—65 (1965 N.A). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous, Treatments×years interaction is present.

5. RESULTS :

(i) 529 Kg/ha. (ii) 136·6 Kg/ha. (based on 9 d.f. made up of Treatments×years interaction). (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_0	M_1	M_2	M_3
Av. yield	452	496	585	585

C.D.=89·2 Kg/ha.

Years	M_0	M_1	M_2	M_3	Significance	G.M.	S.E./plot
1961	423	446	666	604	*	535	26·9
1962	430	567	548	662	*	552	61·2
1963	369	357	469	417	**	403	61·2
1964	583	613	658	657	N.S.	628	58·6
Av.	452	496	585	585	*	529	136·6

Crop :- Bajra (*Main*). **Ref :- T.N. 62(9), 63(15), 64(18).**
Site :- Reg. Res. Stn., Koilpatti. **Type :- 'M'.**

Object :—To find out the relative effects of different sources of N on Bajra.

1. BASAL CONDITIONS :

(i) (a) Cotton—Cereal. (b) Cotton. (c) Urea at 22·4 Kg/ha. and compost at 125 Q/ha. (ii) Black soil. (iii) 16.10.62; 5.11.63; 29.10.64. (iv) (a) Country plough was worked twice and guntaka once. (c) Hand sowing in *goru* seed drill lines. (c) 4 Kg/ha. (d) 46 cm.×15 cm. (e) 1. (v) Nil. (vi) K—1 (medium). (vii) Unirrigated. (viii) Thinning, 2 hand weedings and 2 interculturings. (ix) 36 cm.; 40 cm.; 40 cm. (x) 22.1.63; 8.2 64; 19.1.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 4 sources of N : S_1=C/A/N, S_2=A/S/N, S_3=Urea and S_4=A/S.
(2) 3 levels of N : N_1=22·4, N_2=44·8 anc N_3=67·2 Kg/ha.

Manures applied before sowing in the line of sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3 for 62(9); 4 for others. (iv) (a) 13·7 m.×2·7 m. (b) 13·7 m.×1·8 m. (v) 46 cm. on either side along breadth.

4. GENERAL :

(i) Slightly affected by continuous drought after sowing. (ii) Light incidence of green ear was recorded, no control measure was adopted. (iii) No. of leaves, tillers, plant height and yield of grain. (iv) (a) 1962—65 (1965 N.A). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are homogeneous, Treatments× years interaction is absent.

5. RESULTS :

(i) 549 Kg/ha. (ii) 80·3 Kg/ha. [based on 120 d.f. made up of Treatment×years interaction and pooled error]. (iii) Main effect of N and 'Control *vs.* others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=394 Kg/ha.

	S_1	S_2	S_3	S_4	Mean
N_1	487	521	524	512	511
N_2	536	590	565	574	566
N_3	598	627	604	610	610
Mean	540	579	564	565	562

C.D. for N marginal means=33·9 Kg/ha.
C.D. for 'contro *vs.* others'=49·8 Kg/ha.

Years	S_1	S_2	S_3	S	Sg.	N_1	N_2	N_3	Sig.	G.M.	S.E./plot
62	661	686	661	620	N.S.	610	631	729	*	646	92·5
63	432	475	459	485	N.S.	391	485	513	*	450	62·2
64	558	604	597	604	N.S.	557	598	617	N.S.	576	84·1
Av.	540	579	564	565	N.S.	511	566	610	**	549	80·3

Crop :- Bajra. **Ref :- T.N. 62(SFT).**

Site :- (District) : Salem. **Type :- 'M'.**

Object :— (Type : A_1).To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black ; Red loamy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

N_1 =35 Kg/ha. of N.
N_2 =70 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_1 =70 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S ; P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oil seed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments, 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three Type—C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 [1964-N.A.] for Coimbatore ; 1962-only for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem
62 (S.F.T.) [Rabi]

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	241	302	235	330	521	641	727	49·5

Control yield=1435 Kg/ha. ; No. of trials=3.

Crop :- Bajra. **Ref :- T.N. 63, 64, 65(SFT).**

Site :- (District) : R. Puram. **Type :- 'M'.**

Object :—(Type : A_1). To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in Combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_1 (Irrigated) as given above.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 for R. Puram and 1964-only for Tirunelveli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

R. Puram

63 (S.F.T.) [Rabi]

Treatment Av. response of grain in Kg/ha.	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
	166	334	266	603	453	1019	1108	204·0

Control yield=586 Kg/ha. ; No. of trials=3.

64 (S.F.T.) [Kharif]

Treatment Av. response of grain in Kg/ha.	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
	164	153	91	182	235	317	402	34·6

Control yield=765 Kg/ha. ; No. of trials=11.

65 (S.F.T.) [Rabi]

Treatment Av. response of grain in K/ha.	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
	147	169	122	187	211	253	328	16·0

Control yield=955 Kg/ha. ; No. of trials=15.

Crop :- Bajra (*Rabi*). **Ref :- T.N. 62(S.F.T.).**
Site :- (District) : Salem. **Type :- 'M'.**

Object :—(Type : A_2). To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore and Red loamy for Salem. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=35 Kg/ha. of N.
P_1=35 Kg/ha. of P_2O_5.
P_2=70 Kg/ha. of P_2O_5.
N_1P_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2=35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (Irrigated) on page 264.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 [1964—N.A.] for Coimbatore and 1962-only for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

62(S.F.T.)

Treatment Av. response of grain in Kg/ha.	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
	113	90	303	269	380	437	727	173·1

Control yield=986 Kg/ha. ; No. of trials=3.

Crop :- Bajra. **Ref :- T.N. 64, 65(S.F.T.)**

Site :- (District) : R. Puram. **Type :- 'M'.**

Object :— To study the response curves of important cereal, cash and oil seed crops to phosphorus applied singly and in combination with other nutrients (Type : A_2).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N. A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_2 (Irrigated) on page 265.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 for R. Puram and 1964-only for Tirunelveli (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

65(S.F.T.) [Rabi]

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	121	76	88	130	143	211	328	19·1

Control yield=988 Kg/ha. ; No. of trials=14.

R. Puram

64(S.F.T.) [Kharif]

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	148	87	152	242	240	338	454	35·7

Control yield=799 Kg/ha. ; No. of trials=11.

Crop :- Bajra (*Rabi*). **Ref :- T.N. 62(S.F.T.).**

Site :- (District) : Salem. **Type :- 'M'.**

Object :—(Type : A_3). To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITINOS :

(i) (a) to (c) N.A. (ii) Red loamy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure).
N_1 =35 Kg/ha. of N.
K_1 =35 Kg/ha. of K_2O.
K_2 =70 Kg/ha. of K_2O.
N_1K_1 =35 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2 =35 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2 =70 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$ =35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (Irrigated) on page 264.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	.S.E
Av. response of grain in Kg/ha.	223	88	200	251	381	581	503	85·2

Control yield=1458 Kg/ha. ; No. of trials=3.

Crop :- Bajra (*Rabi*). **Ref :- T.N. 63, 64, 65(S.F.T.).**

Site :- (District) : R. Puram. **Type : 'M'.**

Object :—(Type : A_3). To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_3 (Irrigated) on page 266.

4. GENERAL :

(i) to (iii) N.A (iv) (a) 1964-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

R.Puram

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	275	213	211	554	552	797	746	267·0

Control yield=515 Kg/ha.; No. of trials=3.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	175	129	186	189	255	340	382	22·7

Control yield=808 Kg/ha.; No. of trials=10.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	144	70	101	151	156	194	280	21·8

Control yield=971 Kg/ha.; No. of trials=14.

Crop :- Bajra. **Ref :- T.N. 60, 61(S.F.T).**

Site :- (District): Tirunelveli. **Type :- 'M'.**

Object :—Type A —To study the response of Bajra to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red. (iii) to (x) N.A.

2. TREATMENTS :

O =Control (no manure).
N =22·4 Kg/ha. of N as A/S.
P =22·4 Kg/ha. of P_2O_5 as Super.
K =22·4 Kg/ha. of K_2O as Mur. Pot.
NP =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
NK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
PK =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
NPK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zones. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960 to 1961. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

60(S.F.T.)

	Main effects				Interactions				
	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	40	—10	410	132·0	—20	—180	210	390	166·0

Control yield=1480 Kg/ha., ; No. of trials=2.

61(S.F.T.)

	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	400	320	200	26·0	0	50	—30	0	44·0

Control yield=1030 Kg/ha. ; No. of trials=4.

Crop :- Bajra. **Ref :- T.N. 61(S.F.T.).**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object :— Type A—To study the response of Bajra to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black. (iii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A (1960) on page 267.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

	Main effect				Interaction				
	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	270	120	50	31·0	0	—90	130	120	39·0

Control yield=1700 Kg/ha. ; No. of trials=3.

Crop :- Bajra. **Ref :- T.N. 61(S.F.T.).**

Site :-(District) : Coimbatore. **Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black. (iii) to (x) N.A.

2. TREATMENTS :

O =Control.
n_1 =22·4 Kg/ha. of N as A/S.
n_2 =44·8 Kg/ha. of N as A/S.
n_1' =22·4 Kg/ha. of N as Urea.
n_2' =44 8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in type A (1960) on page 267.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatment	o	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of grain in Kg/ha	1210	1420	1500	1460	1670	1330	1580

G.M.=1453 Kg/ha. ; S.E./mean=70·0 Kg/ha., ; No. of trials=2.

Crop :- Bajra (*Summer*). **Ref :- T:N. 65(10).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against green ear of Bajra.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 12·4 tonnes of F.Y.M.+112 Kg/ha. of A/S. (ii) Black soil. (iii) 16.6.65/Nil. (iv) (a) 2 ploughings. (b) Line sowing. (c) 7 Kg/ha. (d) 45 cm.×15 cm. (e) 1. (v) 123·5 Q/ha. of F.Y.M. +112 Kg/ha. of A/S. (vi) *Kullan Cumbu.* (vii) Irrigated. (viii) Weeding and hoeing. (ix) 13 cm. (x) 7.9.65.

2. TREATMENTS :

Main-plot treatments :

5 insecticidal treatments : M_0=Control (no insecticides), M_1=Seed treatment with Agrazon 2 gm/Kg. of seed, M_2=Seed treatment with flit 2 gm/Kg. of seed, M_3=Drenching with Bordeaux mixture 1% and M_4=Drenching with Fytolan 0·25%.

Sub-plot treatments :

S_1=No manure, S_2=F.Y.M. at 254 Q/ha., S_3=F.Y.M. 500 Q/ha. and S_4=750 Q/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×2·4 m. (b) 2·7 m.×2·4 m. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Flee beetles were found. (iii) Infection data and yield. (iv) (a) 1965—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1799 Kg/ha. (ii) (a) 210·5 Kg/ha. (b) 232·5 Kg/ha. (iii) Main effect of S alone is significant. (iv) Av. yield of *Bajra* in Kg/ha.

	M_1	M_2	M_3	M_4	M_5	Mean
S_1	1702	1656	1878	1663	1787	1737
S_2	1756	1636	1901	1762	1624	1736
S_3	1803	1690	1862	1965	1596	1783
S_4	1855	1997	2034	1848	1959	1941
Mean	1782	1745	1919	1810	1741	1799

C.D. for S marginal means=148·2 Kg/ha.

Crop :- Ragi (*I Season*). **Ref :- T.N. 60(130), 61(35), 62(50), 63(58), 64(68).**

Site :- Agri. Res. Stn.,
Bhavanisagar. **Type :- 'M'.**

Object :—To fix the optimum and economic dose of fertilizer for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 60(130), 61(35); *Sunhemp* for 62(50); Groundnut for 63(58); *Bajra* for 64(68). (c) N.A. for 60(130), 61(35); Nil for 62(50); 125·5 Q/ha. of compost+56 Kg/ha. of A/S+134 Kg/ha. of Super+56 Kg/ha. of Potash for 63(58); 125·5 Q/ha. of compost+224 Kg/ha. of A/S+134 Kg/ha. of Super for 64(68). (ii) Sandy loam. (iii) 24, 25.8.60; 1.9.61; 13.7.62/7.8.62; 27.7.63/19.8.63; 16.7.64/12.8.64. (iv) (a) 3 to 4 ploughings for 60(130), 61(35); 4 ploughings and levelling for others. (b) Nursery sowing for 60(130), 61(35); Transplanting for others. (c) 7 Kg/ha (d) 23 cm.×23 cm. (e) 2. (v) 244 Q/ha. of F.Y.M. (vi) Co.–2 for 63(58); Co.–1 for others. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 26 cm., 39 cm., 36 cm., 23 cm., 49 cm. (x) 8, 14.11.60; 16, 25.11.61; 5.11 62; 6, 13.11.63; 6, 19.11.64.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=45 Kg/ha. of N, T_2=67·5 Kg/ha. of N, T_3=45 Kg/ha. of N+22·5 Kg/ha. of P_2O_5; T_4=T_3+22·5 Kg/ha. of K_2O, T_5=67·5 Kg/ha. of N+22·5 Kg/ha. of P_2O_5 and T_6=T_5+22·5 Kg/ha. of K_2O.

N applied as A/S in two doses : half as basal dressing at the time of planting and half 25 days after as top pressing. P_2O_5 as Super and K_2O as potash were applied as basal dressing at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 10·4 m.×4·9 m. for 60(130); 13·4 m.×3·1 m. for 62(50); 14·6 m.×3·4 m. for 64(68); 11·9 m.×4·3 m. for others. (b) 9·9 m.×4·4 m. for 60(130); 11·4 m.×3·8 m. for 63(58); 14·2 m.×2·9 m for 64(68); 40·5 Sq. m. for others. (v) N.A. for 61(35), 62(50); 23 cm.×23 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of stem borer for 61(35), Seedlings dipped in Fytolan solution before planting; No incidence for others. (iii) Yield of grain. (iv) (a) 1960 - 64. (b) and (c) No. (v) N.A. (vi) individual Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Results of years are presented under 5. Results.

5. RESULTS :

Years	T_9	T_1	T_2	T^3	T_4	T_5	T_6	Significance	G.M.	S.E./plot
1960	1761	2155	2466	2300	2331	2414	2507	*	2276	499·4
1961	2229	2836	2935	3326	3316	2819	3293	**	2965	411·8
1962	990	1550	1532	1270	1457	1663	1550	**	1430	270·2
1963	1007	1562	1736	1458	1614	1736	1701	**	1545	170·2
1964	1523	2331	2766	2339	2331	2794	2810	**	2413	322·9
Polled	1502	2087	2287	2139	2210	2285	2372		2126	

Crop :- Ragi. **Ref :- T.N. 60(130).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :—To fix the optimum and economic dose of organic and inorganic manures for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Sandy loam. (iii) 24, 25.8.60. (iv) (a) 3 ploughings. (b) Nursery sowing. (c) 7 Kg/ha. (d) 23 cm.×23 cm. (e) 2. (v) As per treatments. (vi) Co.—1. (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 26 cm. (x) 8, 14.11.60.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=45 Kg/ha. of N as A/S, T_2=67·2 Kg/ha. of N as A/S, T_3=45 Kg/ha. of N as A/S+22 Kg/ha. of P_2O_5 as Super, T_4=45 Kg/ha. of N as A/S +22 Kg/ha. of P_2O_5+22 Kg/ha. of K_2O as Mur. Pot., T_5=67 Kg/ha. of N as A/S+22 Kg/ha. of P_2O_5, T_6=67 Kg/ha. of N as A/S+22 Kg/ha. of P_2O_5+22 Kg/ha. of K_2O as Mur. Pot.

250 Q/ha. Compost was applied as basal dressing with last ploughing to all the plots. A/S was applied ½ as basal dressing and ½ after 25 days of planting. P_2O_5 and K_2O were applied as basal before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 10·4 m.×4·9 m. (b) 9·9 m.×4·4 m. (v) 23 cm.×23 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960—64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2276 Kg/ha. (ii) 499·4 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1761	2155	2466	2300	2331	2414	2507

C.D.=576·7 Kg/ha.

Crop :- Ragi (*2nd Season*). **Ref :- T.N. 61(64), 62(49), 63(59), 64(69), 65(48).**

Site :- Agri. Res. Stn.,
Bhavanisagar. **Type :- 'M'.**

Object:—To fix the optimum and economic dose of fertilizer for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam* for 62(49); *Sunhemp* for 63(59); *Cumbu* for others. (c) 254 Q/ha. of compost for 61(64); Nil for 63(59); 125·5 Q/ha. of compost+224 Kg/ha. of A/S+140 Kg/ha. of Super for others. (ii) Sandy loam. (iii) 2.1.61/N.A.; 23.1.62/15.2.62; 29.12.62/25.1.63; 29.12.63/27.1.64; 31.12.64/27.1.65. (iv) (a) 3 to 4 ploughings and levelling. (b) Transplanting. (c) 7·4 Kg/ha. (d) 23 cm.×23 cm. (e) 2. (v) 254 Q/ha. of compost for 61(64); 244 Q/ha. of F.Y.M. for others. (vi) Co.—1 for 61(64), 62)49); Co.—2 for others. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 11 cm., 29 cm., 10 cm., 8 cm., N.A. for 65(48). (x) 17 to 21.4 61; 8, 19.5.62; 12, 19.4.63; 18.4.64; 27.4.65.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=45 Kg/ha. of N, T_2=67·5 Kg/ha. of N, T_3=45 Kg/ha. of N+22·5 Kg/ha. of P_2O_5, $T_4=T_3+22·5$ Kg/ha. of K_2O, T_5=67·5 Kg/ha. of N+22·5 Kg/ha. of P_2O_5 and $T_6=T_5+22·5$ Kg/ha. of K_2O.

N as A/S applied in two doses : half as basal dressing at planting and half 25 days after as top dressing, P_2O_5 as Super and K_2O as potash applied as basal dressing at planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 13·4 m.×3·1 m. for 61(64), 14·6 m.×3·4 m. for 65(48); 11·9 m.×4·3 m. for others. (b) 13·0 m.×2·6 m. for 61(64); 40·5 Sq. m. for 62(49); 14·2 m.×2·9 m. for 65(48), 11·4 m.×3·8 m. for others. (v) N.A. for 62(49); 23 cm.×23 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—65. (b) No. (c) Results of combined analysis are given under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous, interaction is present.

5. RESULTS :

(i) 2554 Kg/ha. (ii) 590·3 Kg/ha. (based on 24 d.f. made up of Treatments×years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1605	2620	2957	2488	2421	2961	2826

C.D.=314·3 Kg/ha.

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E./plo t
1961	1622	2000	2122	1731	1419	2231	1932	*	1865	489·8
1962	1170	2383	2728	2424	2380	2522	2937	*	2363	373·9
1963	1823	3107	3680	2969	2969	3750	3663	*	3137	274·2
1964	2315	3460	3536	3226	3245	3624	3425	*	3262	245·9
1965	1097	2152	2721	2092	2092	2780	2173	*	2144	377·0
Pooled	1605	2620	2957	2488	2421	2961	2826	**	2554	590·3

Crop :- Ragi (*1st Season*). **Ref :- T.N. 61(35).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :—To fix the optimum and economic dose of fertilizer for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) Nil/1.9.61. (iv) (a) 4 ploughings. (b) Nursery sowing. (c) 7·4 Kg/ha. (d) 23 cm. × 23 cm. (e) 2. (v) 24 Tonnes/ha. F.Y.M. (vi) Co.—1. (vii) Irrigated through channel, once in five days. (viii) Weeding twice and hoeing. (ix) 39 cm. (x) 16.11.61 and 25.11.61.

2. TREATMENTS :

Same as in Expt. No. 61(64) on page 272.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 11·9 m. × 4·3 m. (b) 40·5 Sq. m. (v) 2 rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Stem borer was noticed. Seedlings dipped in Fytolon solution before planting. (iii) Yield of grain. (iv) (a) 1959—64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2965 Kg/ha. (ii) 411·8 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2229	2836	3326	2935	2819	3316	3293

C.D. = 475·5 Kg/ha.

Crop :- Ragi (*Ist Season*). **Ref :- T.N. 62(50).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To fix the optimum and economic dose of fertilizer for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sunhemp. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 13.7.62/7.8.62. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 7·4 Kg/ha. (d) 23 cm. × 23 cm. (e) 2. (v) 244 Q/ha. of F.Y.M. (vi) Co-1. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 36 cm. (x) 5.11.62.

2. TREATMENTS :

Same as in expt. no. 61 (64) on page 272.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 13·4 m. × 3·1 m. (b) 40·5 sq. m. (v) Two rows on either side (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) 1959-64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1430 Kg/ha. (ii) 270·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	990	1550	1532	1270	1457	1663	1550

C.D. = 310·2 Kg/ha.

Crop :- Ragi (*Ist Season*). **Ref :- T.N. 63(58).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To fix up an optimum and economic dose of manures for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125·5 Q/ha. of compost+56 Kg/ha. of A/S+134 Kg/ha. of Super+56 Kg/ha. of Potash. (ii) (a) Sandy loam. (b) N.A. (iii) 27.7.63/19.8.63. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 7·4 Kg/ha. (d) 23 cm.× 23 cm. (e) 2. (v) 244 Q/ha. of F.Y.M. (vi) Co.-2. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 23 cm. (x) 6 and 13.11.63.

2. TREATMENTS .

Same as in expt. no. 61 (64) on page 272.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 11·9 m.×4·3 m. (b) 11·4 m.×3·8 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1545 Kg/ha. (ii) 170·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1007	1562	1736	1458	1614	1736	1701

C.D.=196·5 Kg/ha.

Crop :- Ragi (*1st Season*). **Ref :- T.N. 64(68).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To fix up an optimum and economic dose of manures for Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra.* (c) 125·5 Q/ha. of compost+224 Kg/ha. of A/S+134 Kg/ha. of Super. (ii) Sandy loam. (b) N.A. (iii) 16.7.64/12.8.64. (iv) (a) 4 ploughings and levelling. (b) Transplanting. (c) 7·4 Kg/ha. (d) 23 cm.×23 cm. (e) 2. (v) 244 Q/ha. of F.Y.M. (vi) Co.-1. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 49 cm. (x) 6, 19.11.64.

2. TREATMENTS :

Same as in expt. no. 61 (64) on page 272.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 14·6 m.×3·4 m. (b) 14·2 m.×2·9 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2413 Kg/ha. (ii) 322·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1523	2331	2766	2339	2331	2794	2810

C.D.=372·9 Kg/ha.

Crop :- Ragi. **Ref :- T.N. 60(36).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To evaluate the efficacy of organic manures on the yield of Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red gravelly loam. (b) N.A. (iii) 19, 20.1.60. (iv) (a) 2 to 3 ploughings. (b) N.A. (c) 5·6 Kg/ha. (d) 15·3 cm.×15·3 cm. (e) 1. (v) Nil. (vi) Co.-1. (vii) Irrigated. (vii) 2 weedings. (ix) N.A. (x) 14.4.60.

2. TREATMENTS :

Main-plot treatments :

5 sources of organic manures : M_1=Sunhemp, M_2=Glyricidia, M_3=Sesbania, M_4=Daincha and M_5=Cowpea.

Sub-plot treatments :

4 levels of manures : L_0=0, L_1=2800, L_2=5600 and L_3=8400 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/block. 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 8·2 m.×7·6 m. (b) 7·6 m.×7·0 m. (v) 30·5 cm.×30·5 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1889 Kg/ha. (ii) (a) 253·1 Kg/ha. (b) 171·0 Kg/ha. (iii) Control vs. others is highly significant. Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

Control yield=1872 Kg/ha.

	M_1	M_2	M_3	M_4	M_5	Mean
L_1	1926	1755	1824	2192	1931	1926
L_2	2083	1928	2025	2367	1955	2071
L_3	2135	1991	1874	2313	2131	2089
Mean	2048	1891	1908	2291	2006	2029

C.D. for M marginal means=230·1 Kg/ha.
C.D. for control vs. others=89·0Kg/ha.

Crop :- Ragi. **Ref :- T.N. 60(35).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To evaluate the efficacy of organic manures on the yield of Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red gravelly loam. (b) N.A. (iii) 4, 5.1.60. (iv) (a) 2 to 3 ploughings. (b) N.A. (c) 5·6 Kg/ha. (d) 15·2 cm.×15·2 cm (e) 1. (v) Nil. (vi) Co.-1. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 26.3.60.

2. TREATMENTS :

Main-plot treatments :

4 sources of organic manures : M_1=Sunhemp, M_2=Glyricidia. M_3=F.Y.M. and M_4=Ordinary compost.

Sub-plot treatments :

4 levels of manures : L_0=0, L_1=2800, L_2=5600 and L_3=8400 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/block, 4 sub-plots/ main-plot. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×7·3 m. (b) 8·5 m.×6·7 m. (v) 30·5 cm.×30·5 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1956-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2016 Kg/ha. (ii) (a) 459·5 Kg/ha. (b) 182·7 Kg/ha. (iii) Main effect of L and control vs. others are highly significant. (iv) Av. yield of grain in Kg/ha.

Control mean=1904 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
L_1	2104	1861	2093	1965	2006
L_2	1986	1993	2099	1833	1978
L_3	2424	2040	2164	2077	2176
Mean	2171	1965	2119	1958	2053

C.D. for control vs. others =107·0 Kg/ha.
C.D. for L marginal means =131·1 Kg/ha.

Crop :- Ragi. **Ref :- T.N. 62(47).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the comparative effect of spraying organic and inorganic nutrient solutions on the growth and yield of Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fodder—Maize. (c) N.A. (ii) Clay loam. (iii) 23.8.62/26.9.62. (iv) (a) 3 ploughings and levellings. (b) Transplanting. (c) 6·6 Kg/ha. (d) 15 cm.×15 cm. (e) 2 or 3. (v) 28 Kg/ha. of K_2O as Mur. of Pot. and 33·4 Kg/ha. of P_2O_5 as Super. (vi) CO—2 (early). (vii) Irrigated. (viii) 4 weedings. (ix) 3 cm. (x) During the 3rd week Dec. 62.

2. TREATMENTS :

16 treatments : T_0=Control, T_1=Water spray, T_2=Full N as urea to soil, T_3=Full N as urea spray, T_4=Full N as peplovised G.N.C. to soil, T_5=Full N as peplovised G.N.C. spray, T_6=Full N as G.N.C. to soil, T_7=Full N as G.N.C. spray, T_8=Half N as urea to soil, T_9=Half N as urea spray, T_{10}=Half N as pepto. G.N.C. to soil, T_{11}=Half N as pepto. G.N.C. spray, T_{12}=Half N as A/S to soil, T_{13}=Half N as urea to soil+Half N as urea spray, T_{14}=Half N as pep. G.N.C. to soil+Half N as pep. G.N.C. spray, T_{15}=Half N as G.N.C. to soil.

(Level of N is 44·8 Kg/ha).

3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20·2 Sq. m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) Height measurements, yield of grain and straw. (iv) (a) 1962—63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 422 Kg/ha. (ii) 67·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

5. RESULTS :

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	348	387	482	481	504	487	393	389
	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	T_{15}
	401	390	378	339	423	390	539	415

C.D.=95·9 Kg/ha.

Crop :- Ragi (*Samba*). **Ref :- T. N. 62(2).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'M'.**

Object ;—To find out the relative response of Ragi to C/A/N and A/S.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (iii) 125·5 Q/ha. of F.Y.M. and 44·8 Kg/ha. of N and 22·4 Kg/ha. of P_2O_5. (ii) Loamy soil. (iii) 13.8.62. (iv) (a) 2 or 3 ploughings. (b) Line planting. (c) 3·36 Kg/ha. (d) 15 cm. × 15 cm. (e) 2. (v) 125·5 Q/ha. of F.Y.M. and 22·4 Kg/ha. of P_2O_5. (vi) Co.—7. (vii) Irrigated. (viii) Hoeing and weeding are given at least twice. (ix) 13 cm. (x) 30, 31.10.62.

2. TREATMENTS :

All combinations of (1) and (2)+one control
(1) 3 levels of N : N_1=22·4, N_2=33·6 and N_3=44·8 Kg/ha.
(2) 2 sources of N : S_1=C/A/N and S_2=A/S.
Manures applied as basal dressing at the time of planting in a single dose.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 61·6 m.×32·0 m. (iii) 4. (iv) (a) 40·5 Sq. m. (b) 31·1 Sq. m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Plant height, total number of productive and unproductive tillers. (iv) (a) 1962—64 (treatments modified in 63). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2008 Kg/ha. (ii) 381·0 Kg/ha. (iii) Main effect of N alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=1683 Kg/ha.

	N_1	N_2	N_3	Mean
S_1	2366	2138	1738	2081
S_2	2420	1911	1801	2044
Mean	2393	2025	1769	2062

C.D. for N marginal means=400·2 Kg/ha.

Crop :- Ragi (*Samba*). **Ref :- T.N. 63(3), 64(3).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To find out the relative response of Ragi to C/A/N, A/S and Urea.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 63(3); Maize for 64(3). (c) 125·5 Q/ha. of F.Y.M. and 44·8 Kg/ha. of N, 16·8 Kg/ha. of P_2O_5 and 16·8 Kg/ha. of K_2O for 63(3); 125·5 Q/ha. of F.Y.M.+44·8 Kg/ha. of N. (ii) Loamy soil. (iii) N.A./18, 19.7.63; N.A./18 to 20.8.64, (iv) (a) 2 to 3 ploughings. (b) Line planting. (c) 3·4 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 125·5 Q/ha. of F.Y.M., 22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Pot. Sul. (vi) Co.—7. (vii) Irrigated. (viii) Hoeing and weeding twice. (ix) 3 cm.; 13 cm. (x) 4.10.63; 30.10.64.

2. TREATMENTS :

All combinations of (1) and (2)+Control

(1) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.

(2) 3 levels of N : N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha,

C/A/N, A/S and Urea all applied as basal dressing at the time of planting in a single dose.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 54·3 m.×39·6 m. (iii) 4. (iv) (a) 40·5 Sq. m. (b) 31·2 Sq. m. (v) N.A.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant height and yield of grain. (iv) (a) 1962—65 (treatment modified in 63) and 65 is N.A. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous and the treatment ×years interaction is absent.

5. RESULTS :

63(3)

(i) 3524 Kg/ha. (ii) 497·4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3169 Kg/ha.

	N_1	N_2	N_3	Mean
S_1	3129	3871	3189	3396
S_2	3470	4212	3169	3617
S_3	3831	3550	3650	3677
Mean	3477	3878	3336	3563

C.D. for N marginal means=416·7 Kg/ha.

64(3)

(i) 2622 Kg/ha. (ii) 305·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2703 Kg/ha.

	N_1	N_2	N_3	Mean
S_1	2628	2700	2734	2687
S_2	2514	2697	2770	2660
S_3	2405	2488	2584	2492
Mean	2516	2628	2696	2613

———

Crop :- Ragi (*Summer*). **Ref :- T.N. 63(74), 64(79).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To determine the relative efficacy of C/A/N, A/S and Urea.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cowpea for 63(74); *Cholam* for 64(79). (c) Nil for 63(74); N.A. for 64(79). (ii) Red loamy. (iii) 11.1.63/4.2.63; 3.1.64/28.2.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) 4 Kg/ha. (d) 20 cm.×20 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co—7 (early). (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) 3 cm.; 6 cm. (x) 26.4.63; 13.5.64.

2. TREATMENTS ;

Main-plot treatments :

3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.

Sub-plot treatments :

All combinations of (1) and (2)+a control

(1) 3 levels of N : N_1=22·4, N_2=33·6 and N_3=44·8 Kg/ha.

(2) 3 methods of placement : M_1=At planting, M_2=25 to 30 days after planting and M_3=½ N at planting+½ N 25 to 30 days after planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 10 sub-plots/main-plot. (b) 30 m.×20 m. (iii) 6. (iv) (a) 10 m.×2 m. (b) 9·2 m.×1·2 m. (v) 40 cm.×40 cm.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Weight of ear heads, grain and straw. (iv) (a) 1962—63. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous, therefore individual year results are presented under 5. Results.

5. RESULTS :

63(74)

(i) 2764 Kg/ha. (ii) (a) 462·0 Kg/ha. (b) 360·4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=2622 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
N_1	2586	2737	2693	2652	2606	2759	2672
N_2	2774	2812	2897	2859	2819	2804	2828
N_3	2792	2851	2872	2924	2862	2728	2838
Mean	2717	2800	2821	2812	2763	2761	2779
M_1	2739	2828	2866				
M_2	2710	2877	2701				
M_3	2703	2694	2895				

C.D. for N marginal means=136·0 Kg/ha.

64(79)

(i) 1256 Kg/ha. (ii) (a) 547·8 Kg/ha. (b) 270·9 Kg/ha. (iii) Main effect of N is significant and 'control *vs.* others' is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=1068 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
N_1	1143	1235	1262	1167	1185	1287	1213
N_2	1201	1279	1266	1233	1262	1251	1249
N_3	1266	1379	1463	1406	1354	1347	1369
Mean	1203	1298	1330	1269	1267	1295	1277
M_1	1196	1285	1326				
M_2	1244	1317	1240				
M_3	1170	1291	1425				

C.D. for N marginal means=102·1 Kg/ha.

C.D. for 'control *vs.* others'=131·9 Kg/ha.

Years	S_1	S_2	S_3	Sig	N_1	N_2	N_3	Sig	M_1	M_2	M_3	Sig.	Control	Sig.	G.M.	S.E.	
																Main plot	Sub plot
1963	2717	2800	2821	N.S.	2672	2828	2838	**	2812	2763	2761	N.S.	2522	N.S.	2779	462·0	360·4
1964	1203	1298	1330	N.S.	1213	1249	1369	**	1269	1267	1295	N.S.	1068	**	1256	547·8	270·9
Av.	1960	2049	2076	—	1943	2039	2104	—	2041	2015	2028	—	1843	—	2018	—	—

Crop :- Ragi (*Monsoon*). **Ref :- T.N. 62(57), 63(75).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To determine the relative efficacy of C/A/N, A/S and Urea.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam* for 62(57); *Lab-lab* for 63(75). (c) N.A. for 62(57); Nil for 63(75). (ii) Red loamy. (iii) 21.7.62/18.8.62; 10.6.63/6.7.63. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) 4 Kg/ha. (d) 20 cm. ×20 cm. (e) 2. (v) 254 Q/ha. of F.Y.M.+168 Kg/ha. of Super. (vi) Co.—2 (medium). (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 29 cm.; 6 cm. (x) 9.11.62; 30.9.63.

2. TREATMENTS :

Same as in expt. no. 63(74), 64(79) on page 279.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 10 sub-plots/main-plot. (b) N.A. for 62(57); 30 m.×20 m. for 63(75). (iii) 6. (iv) (a) 10 m.×2 m. (b) 9·2 m.×1·2 m. (v) 40 cm.×40 cm.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Weight of ear heads and yield of grain and straw. (iv) (a) 1962—63. (b) Nil. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous, therefore individual year results are presented below.

5. RESULTS :

62(57)

(i) 2248 Kg/ha. (ii) (a) 573·8 Kg/ha. (b) 287·8 Kg/ha. (iii) Main effects of N, S, M and 'control *vs.* others' are highly significant. Interactions N×M and S×N×M are significant. (iv) Av. yield of grain in Kg/ha.

Control=2018 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
N_1	1969	2156	2371	2272	2054	2170	2165
N_2	2072	2337	2373	2400	2049	2335	2261
N_3	2149	2478	2556	2679	2203	2301	2395
Mean	2063	2324	2433	2450	2102	2269	2274
M_1	2239	2505	2607				
M_2	1897	2145	2263				
M_3	2054	2321	2431				

C.D. for S marginal means =249.7 Kg/ha.
C.D. for N or M marginal means=109·7 Kg/ha.
C.D. for 'control *vs.* others' =141·5 Kg/ha.
C.D. for N×M table =189·9 Kg/ha.

63(75)

(i) 2472 Kg/ha. (ii) (a) 1049·3 Kg/ha. (b) 435·8 Kg/ha. (iii) 'Control *vs.* others' is highly significant and main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

Control=2152 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
N_1	2339	2399	2467	2286	2519	2400	2402
N_2	2449	2505	2377	2406	2576	2350	2444
N_3	2489	2737	2808	2574	2766	2694	2678
Mean	2422	2547	2551	2422	2620	2481	2508
M_1	2364	2351	2551				
M_2	2587	2705	2569				
M_3	2326	2585	2533				

C.D. for M marginal means=166·1 Kg/ha.
C.D. for 'control *vs.* others'=214·4 Kg/ha.

Crop :- Ragi (*Kharif*).

Ref :- T.N. 62, 63, 64(S.F.T.) for Coimbatore 62, 64, (S.F.T.) for Salem and Madurai ; 62(S.F.T.) for Tirunelveli ; 64(S.F.T.) for R. Puram and Trichy ; 63, 65(S.F.T.) for N. Arcot.

Site :-(District) : Coimbatore, Salem, Madurai, Tirunel-veli, R. Puram, N. Arcot. and Trichy.

Type :- 'M'.

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem and Red sandy for other centres. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =35 Kg/ha. of N.
N_2 =70 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_1 =70 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha of P_2O_5+35 Kg/ha. K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oil seed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For condncting the three type—C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1964 (1963—N.A. for Salem and Madurai) for Coimbatore, Salem and Madurai ; 1962 to 1965 for Tirunelveli ; 1964—only for R. Puram ; 1964 to 1965 for Trichy ; 1963 to 1965 (1964 N.A.) for N. Arcot. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	50	53	50	70	92	89	107	21·1

Control yield=1327 Kg/ha. ; No. of trials=2.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	—101	137	54	117	242	252	260	27·0

Control yield=1605 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	247	265	49	176	265	401	525	59·7

Control yield=1624 Kg/ha. ; No. trials=6.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	463	519	514	643	659	771	977	204·4

Control yield=1836 Kg/ha. ; No. of trials=2.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	230	395	263	362	527	560	658	73·6

Control yield=1779 Kg/ha. ; No. of trials=3.

Madurai

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	675	869	440	713	785	999	1136	264·3

Control yield=3039 Kg/ha. ; No. of trials=4.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	252	426	15	344	521	448	708	97·5

Control yield=2168 Kg/ha. ; No. of trials=4.

Tirunelveli

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain inKg/ha.	197	461	131	395	461	593	1186	159·4

Control yield=2635 Kg/ha. ; No. of trials=3.

R. Puram

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	117	182	9	112	184	448	451	7·2

Control yield=1387 Kg/ha. ; No. of trials=3.

N. Arcot

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	161	284	61	253	315	411	545	59·0

Control yield=2013 Kg/ha, ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	82	166	55	207	233	288	409	23·4

Control yield=1558 Kg/ha. ; No. of trials=14.

Trichy

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	—68	114	—80	42	264	331	383	84 4

Control yield=1388 Kg/ha. ; No. of trials=13.

Crop :- Ragi (*Rabi*).

Ref:- T.N. 62, 63, 64, 65(S.F.T.) for Coimbatore and Salem ; 62, 63, 65(S.F.T.) for Chingleput ; 62, 65 (S.F.T.) for S. Arcot ; 63, 64(S.F.T.) for Tirunelveli.

Site :- (District) : Coimbatore, Salem, Chingleput, S. Acort, and Tirunelveli.

Type :- 'M'.

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen singly and in combination with other nutrients

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem ; coastal alluvium for Chingleput ; Deltaic alluvium for S. Arcot and Red sandy for other centres. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1(*Kharif* irrigated) on page no. 282.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1964 for Tirunelveli ; 1964 only for Madurai ; 1963 only for R. Puram ; 1965 only for Thanjavur ; 1962 to 1965 (1964—N.A. for Chingleput and 1963 and 1964—N.A. for S. Arcot) for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	45	269	127	164	186	397	562	131·0

Control yield=1860 Kg/ha. ; No. of trials=7.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	321	716	—74	123	617	444	1136	478·0

Control yield=2347 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	296	345	—24	321	469	642	741	75·7

Control yield=1433 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	38	73	20	60	104	24	161	134·5

Control yield=1368 Kg/ha. ; No. of trials=6.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	83	280	140	146	268	314	464	41·9

Control yield=1288 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	59	246	151	175	99	242	272	67·6

Control yield=1014 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	16	214	230	131	181	329	395	79·7

Control yield=1219 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	291	591	258	416	200	650	633	233·6

Control yield=1558 Kg/ha. ; No. of trials=6.

Chingleput

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	119	160	125	239	292	349	409	34·7

Control yield=1386 Kg/ha. ; No. of trials=7.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	247	461	—16	164	403	284	556	86·8

Control yield=1877 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	310	352	266	417	499	523	665	137·3

Control yield=1714 Kg/ha. ; No. of trials=5.

S. Arcot

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	231	477	67	316	645	664	722	59·8

Control yield=1390 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	450	520	143	512	736	841	956	96·1

Control yield=2161 Kg/ha. ; No. of trials=6.

Tirunelveli

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha	98	247	148	321	444	568	642	71·0

Control yield=1828 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	210	506	123	247	407	432	568	256·2

Control yield=1964 Kg/ha. ; No. of trials=3.

Crop :- Ragi (*Rabi*).

Ref :- T.N. 63(S.F.T.) for N. Arcot ; 65(S.F.T.) for R. Puram.

Site :- (District) : N. Arcot and R. Puram.

Type :- 'M'.

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1 (*Kharif*) on page 282.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 only for N. Arcot and 1965 only for R. Puram. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

N. Arcot

63(.S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	63	79	94	137	204	249	315	27·8

Control yield=791 Kg/ha. ; No.of trials=7.

R. Puram

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	95	121	30	204	197	284	326	55·5

Control yield=1139 Kg/ha. ; No. of trials=11.

Crop :- Ragi (*Rabi*).

Ref :- T.N. 62, 63, 64, 65(S.F.T.) for Coimbatore and Salem ; 63, 65(S..FT.) for Chingleput, 63, 64 S.F.T.) for Tirunelveli; 62, 65(S.F.T.) for S. Arcot.

Site :- (District): Coimbatore, Salem, Chingleput, Tirunelveli; and S. Arcot.

Type :- 'M'.

Object :—Type : A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Coastal alluvium for Chingleput, Deltaic alluvium for S. Arcot, Red and black for Coimbatore, Red loamy and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure)
N_1 =35 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
P_2 =70 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2 =35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.
(N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot).

3. DESIGN :

Same as in Type A_1 (*Kharif*) on page 282.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 [1964 N.A. for Chingleput ; 1964 and 1965 N.A. for R. Puram] for Chingleput and R. Puram; 1963 to 1965 for Tirunelveli ; 1965 only for Thanjavur ; 1962 to 1966 [1963 and 1964 N.A. for S. Arcot] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Chingleput

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	30	105	86	228	383	321	426	51·4

Control yield=2137 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	262	225	250	294	350	406	525	53·5

Control yield=1862 Kg/ha. ; No. of trials=4.

S. Arcot

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	181	151	299	256	312	428	590	63·8

Control yield=1451 Kg/ha.; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	406	171	384	381	790	813	1084	153·9

Control yield=2115 Kg/ha.; No. of trials=6.

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	230	84	129	208	229	225	601	113·9

Control yield=1789 Kg/ha. ; No. of trials=7.

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	390	−87	340	488	554	831	1114	236·2

Control yield=3069 Kg/ha. ; No. of trials=3.

64 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	158	0	138	276	316	573	731	69 0

Control yield=1344 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	131	61	67	130	90	191	219	108.0

Control yield=1435 Kg/ha. ; No. of trials=6.

Salem

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	69	135	201	127	194	366	359	30.6

Control yield=1314 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	93	66	168	109	145	190	235	42.0

Control yield=1167 Kg/ha.; No. of trials=9.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	164	296	444	345	362	461	477	83·9

Control yield=1070 Kg/ha. ; No. trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	316	183	275	266	308	583	483	68·5

Control yield=1591 Kg/ha. ; No. of trials=6.

Tirunelveli

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	197	172	321	321	296	518	691	84·0

Control yield=1754 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment Av. response of grain in Kg/ha.	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
	82	49	115	214	197	395	543	56·4

Control yield=1877 Kg/ha. ; No. of trials=3.

———

Crop :- Ragi (*Kharif*).

Ref :- T.N. 62, 64(S.F.T.) for Salem and 62, 63(S.F.T.) for Madurai ; 62, 63, 64(S.F.T.) for Coimbatore ; 63, 65(S.F.T.) for N. Arcot ; 64(S.F.T.) for R. Puram and Trichy and 62(S.F.T.) for Tirunelveli.

Site :- (District): Salem, Tirunelveli, Madurai, Coimbatore, N. Arcot, R. Puram and Trichy.

Type : 'M'.

Object :—Type : A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_2 (*Rabi*, Irrigated) on page 282.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 [1964 N.A.] for N. Arcot ; 1964—only for R. Puram and Trichy ; 1962 to 1964 [1963 N.A. for Salem, Tirunelveli and Madurai] for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment Av. response of grain in Kg/ha.	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
	72	62	83	88	92	134	165	38·9

Control yield=1485 Kg/ha. ; No. of trials=3.

63(S.F.T.)

Treatment Av. response of grain in Kg/ha.	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
	236	58	88	86	179	283	361	78·0

Control yield=1676 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment Av. response of grain in Kg/ha.	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
	49	—55	—12	55	179	283	518	45·1

Control yield=1667 Kg/ha. ; No. of trials=5.

Salem

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	280	235	325	425	602	482	638	185·8

Control yield=1717 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	49	197	290	345	345	444	593	49·4

Control yield=1877 Kg/ha. ; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	329	197	197	461	593	922	1120	184·7

Control yield=2503 Kg/ha. ; No. of trials=3.

N. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	131	54	180	164	262	263	402	30·0

Control yield=2186 Kg/ha ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	119	84	117	122	191	249	384	32·7

Control yield=1570 Kg/ha. ; No. of trials=14.

Madurai

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	201	187	138	231	329	189	323	83·7

Control yield=1523 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	148	82	46	131	230	280	355	111·3

Control yield=906 Kg/ha. ; No. of trials=3.

Trichy

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	120	150	101	219	258	367	432	114·3

Control yield=1390 Kg/ha. ; No. of trials=4.

R.Puram

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	182	128	132	221	300	289	440	65·6

Control yield=1163 Kg/ha. ; No. of trials=4.

Crop :- Ragi (*Rabi*). **Ref :- T.N. 63(S.F.T.) for N. Arcot and 65(S.F.T.) for R. Puram.**

Site :- (District) : N. Arcot & R. Puram. **Type :- 'M'.**

Object :—Type : A_2. To study the response curves of important cereal cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_1(*Rabi*, Irrigated) on page 282.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963-only for N. Arcot and 1965-only for R. Puram. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

N. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	80	107	121	175	198	244	319	23·2

Control yield=782 Kg/ha. ; No. of trials=7.

R. Puram

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	99	56	103	162	382	240	291	70·9

Control yield=1252 Kg/ha. ; No. of trials=11.

Crop :- Ragi (*Rabi*). **Ref :- T.N. 62, 63, 65(S.F.T.) for chingleput ; 64 (S.F.T.) for N. Arcot ; 62, 65(S.F.T.) for S. Arcot ; 63, 64, 65(S.F.T.) for Tirunelveli ; and 62, 63, 64, 65(S.F.T.) for others.**

Site :- (District) : Coimbatore, Chingleput, N. Arcot, S. Arcot, Salem and Tirunelveli. **Type :- 'M'.**

Object :—Type : A_3. To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for coimbatore ; coastal alluvium for Chingleput ; Deltaic alluvium for S. Arcot ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O=Control (no manure)
N_1=35 Kg/ha. of N.
K_1=35 Kg/ha. of K_2O.
K_2=70 Kg/ha. of K_2O.
N_1K_1=35 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2=35 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2=70 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$=35 Kg/ha. of N+35 Kg/ha of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in Type A_1 (*Kharif*, Irrigated) on page 282.

4. GENERAL :

(i) to (iii) N.A. (iv) 1964 to 1966[1965 N.A. for N. Arcot] ; 1963 to 1965 for Tirunelveli ; 1965-only for Tanjavur ; 1962 to 1966 [1964 N.A. for Chingleput, 1963 and 1964 N.A. for S. Arcot] for Chingleput, S. Arcot and Coimbatore ; 1962 to 1965 for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	185	66	12	160	463	352	489	125·6

Control yield=1791 Kg/ha.; No. of trials=7,

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	225	268	179	314	405	448	537	—

Control yield=1792 Kg/ha.; No. of trials=2.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	138	118	158	296	336	494	533	83·4

Control yield=1225 Kg/ha.; No. of trials=5.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	99	51	68	124	143	222	206	36·1

Control yield=1645 Kg/ha.; No. of trials=6.

N. Arcot

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	148	121	138	174	198	256	223	96·0

Control yield=197 Kg/ha. ; No. of trials=3.

Salem

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	246	37	105	217	247	313	396	25·3

Control yield=1187 Kg/ha.; No. of trials=4.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	161	46	63	125	180	242	314	49·6

Control yield=1187 Kg/ha.; No. of trials=5.

64(S.T.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	395	82	131	230	197	329	411	73·6

Control yield=1070 Kg/ha.; No. of trials=3.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	461	200	291	366	466	658	691	63·3

Control yield=1333 Kg/ha. ; No. of trials=6.

Tirunelveli

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	308	234	259	481	555	531	605	66·0

Control yield=1816 Kg/ha ; No. of trials=4.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	131	90	115	156	181	263	411	48·9

Control yield=1762 Kg/ha ; No. of trials=3.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	200	100	150	200	200	250	300	—

Control yield=1725 Kg/ha. ; No. of trials=1.

Chingleput

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grainin Kg/ha.	109	91	148	180	213	332	375	54·2

Control yield=1321 Kg/ha. ; No. of trials=8.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	230	107	32	267	345	469	420	63·6

Control yield=2207 Kg/ha. ; No. of trials=4.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	225	179	203	254	264	250	366	30·6

Control yield=1333 Kg/ha. ; No. of trials=5.

S. Arcot
62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—512	—62	36	206	316	396	237	303·0

Control yield=1476 Kg/ha. ; No. of trials=3.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	499	163	186	560	469	990	918	127·6

Control yield=1983 Kg/ha. ; No. of trials=6.

Crop :- Ragi (*Kharif*).

Ref :- T.N. 63, 64(S.F.T.) for Coimbatore ; 62, 65(S.F.T.) for N. Arcot ; 64(S.F.T.) for R. Puram, Trichy and Salem and 62, 64 (S.F.T.) for Madurai and 62 (S.F.T.) for Tirunelveli.

Site :- (District) : Coimbatore, Madurai, N. Arcot, R. Puram, Salem, Tirunelveli and Trichy.

Type :- 'M'.

Object :— Type : A_3 To study the response curves of important, cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) N.A. (ii) Red and black for coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_3 (*Rabi*, Irrigated) on page 292.

4. GENERAL:

(i) to (iii) N.A. (iv) 1963 to 1964 for Coimbatore ; 1963 to 1965 for N. Arcot ; 1964 to 1966[1965 N.A.] for R. Puram ; 1964-only for Trichy ; 1962 to 1964 [1963 N.A.] for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore
63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	62	16	58	58	83	152	199	22·0

Control yield=1345 Kg/ha. ; No. of trials=4.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	158	19	49	192	252	415	553	51·6

Control yield=1601 Kg/ha. ; No. of trials=6.

N. Arcot

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	175	48	113	220	259	329	450	54·0

Control yield=2098 Kg/ha. No. of trials=3.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	215	36	109	204	253	302	328	34·3

Control yield=1515 Kg/ha. ; No. of trials=14.

Salem

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	0	0	49	148	148	172	172	32·3

Control yield=1383 Kg/ha. ; No. of trials=2.

Tirunelveli

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	395	461	498	724	1054	1120	790	146·4

Control yield=2108 Kg/ha. ; No. of trials=3.

Trichy

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	149	171	200	239	244	311	428	149·6

Control yield=1333 Kg/ha. ; No. of trials=4.

Madurai

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	466	552	477	513	555	784	1119	250·2

Control yield=3429 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	135	48	394	594	721	846	886	164·8

Control yield=1745 Kg/ha. ; No. of trials=7.

R. Puram

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	105	70	100	129	239	262	460	65·0

Control yield=1260 Kg/ha. ; No. of trials=3.

Crop :- Ragi (*Rabi*). **Ref :- T.N. 63(S.F.T.).**

Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :—Type : A_3. To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_3 (*Rabi*, Irrigated) on page 292.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	46	30	40	118	137	243	286	21·5

Control yield=869 Kg/ha. ; No. of trials=7.

Crop :- Ragi. **Ref :- T.N. 60(S.F.T.).**

Site :-(District) : Tiruchirapalli. **Type :- 'M'.**

Object :—Type : A—To study the response of Ragi to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red. (iii) to (x) N.A.

2. TREATMENTS :

0 =Control (no manure).
n =22·4 Kg/ha. of N as A/S.
p =22·4 Kg/ha. of P_2O_5 as Super.
k =22·4 Kg/ha. of K_2O as Mur. Pot.
np =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
nk =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
pk =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
npk =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on kharif cereal, 8 on a rabi cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960 to 1961. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

60 (S.F.T.)

	Main effects				Interactions				
	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. yield of grain in Kg/ha.	130	210	50	25·0	40	20	—30	40	49·0

Control mean=2250 Kg/ha., and no. of trials=3.

61(S.F.T.)

	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. yield of grain in Kg/ha.	190	110	130	18·0	0	60	40	10	26·0

Control yield=1560 Kg/ha. ; No. of trials=4.

Crop :- Ragi. **Ref :- T.N. 61(S.F.T.).**

Site :- (District) : Coimbatore and Salem. **Type :- 'M'.**

Object :— Type A : To study the response of Paddy to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black ; Red. (iii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in type A (60) on page 296.

4. GENERAL :

(i) to (iii) N.A, (iv) 1961-only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

	Main effects				Interactions				
	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. yield of grain in Kg/ha.	350	280	130	26·0	80	50	90	60	38·0

Control yield=2280 Kg/ha. ; No. of trials=10

Salem

	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Av. response of grain in Kg/ha.	240	120	90	64·0	—80	20	—30	80	37·0

Control yield=2150 Kg/ha. ; No. of trials=8

Crop :- Ragi.

Ref :- T.N. 60 (S.F.T.) for Chingleput ;
61(S.F.T.) for Coimbatore ; 60, 61
(S.F.T.) for Tiruchirapalli.

Site :- (District) : Chaingleput,
Coimbatore and Tiruchirapalli.

Type :- 'M'.

Object :— Type : B : To investigate the relative efficiency of different nitrogenous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Coastal for Chingleput ; Red and black for Coimbatore and Red for Tiruchirapalli. (iii) to (x) N.A.

2. TREATMENTS :

O=Control (no manure)
n_1=22·4 Kg/ha. of N as A/S.
n_2=44·8 Kg/ha. of N as A/S.
n_1'=22·4 Kg/of N as Urea.
n_2'=44·8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in type A (60) on page 296.

4. GENERAL :

(i) to (iii) N.A. (a) 1960-only for Chingleput ; 1961-only for coimbatore and 1960 to 1961 for Tiruchirapalli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

61(SFT)

Effect	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Av. yield of grain in Kg/ha.	2470	2570	2470	2690	2750	2810	50·2

Control yield=2260 Kg/ha. ; No. of trials=16

Chingleput

60(SFT)

Effect	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Av. yield of grain in Kg/ha.	2050	2170	2210	2240	2140	2330	71·4

Control yield=1870 Kg/ha. ; No. of trials=3

Tiruchirapalli

60(SFT)

Effect	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Ay. yield of grain in Kg/ha.	2330	2690	2260	2530	2450	2690	45·3

Control yield=2220 Kg/na. ; No. of trials=2

61(SFT)

Effect	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Av. yield of grain in Kg/ha.	2180	2270	2120	2270	2170	2330	25·5

Control yield=2090 Kg/ha. ; No. of trials=3

Crop :- Ragi. **Ref :- T.N. 60(33).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'CM'.**

Object :— To find out a legume suitable for the tract.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red gravelly loam. (b) N.A. (iii) 1, 2.2.1960. (iv) (a) 2 to 3 ploughings. (b) N.A. (c) 5·6 Kg/ha. (d) 15·2 cm. × 15·2 cm. (e) N.A. (v) Nil. (vi) Co.-1. (vii) Irrigated. (viii) 2 weedings. (ix) 7 cm. (x) 14.5.1960.

2. TREATMENTS:

Main-plot treatments :

6 legumes : M_1=Sunnhemp, M_2=Dew gram, M_3=Cowpea, M_4=Dhaincha, M_5=Sesbania and M_6=Indigo.

Sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 and P_1=33·6 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/block ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 19·5 m. × 5·5 m. (b) 19·2 m. × 5·2 m. (v) One row left as border. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1956-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1252 Kg/ha. (ii) (a) 185·6 Kg/ha. (b) 371·3 Kg/ha. (iii) Only P effect is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	M_4	M_5	M_6	Mean
P_0	1092	1029	1281	1104	1060	1228	1132
P_1	1482	1376	1247	1416	1399	1309	1372
Mean	1287	1202	1264	1260	1230	1268	1252

C.D, for P marginal means=225·0 Kg/ha.

Crop :- Ragi (*Main*). **Ref :- T.N. 63(209), 65(33).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'IM'.**

Object :— To find out the irrigation requirements under varying doses of manures for Ragi crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. for 63 (209) ; 125 Q/ha. of F.Y.M. (ii) Red clayey loam. (iii) 1, 3.6.63/7.7.63 ; 30.4.65/22 to 24.5.65. (iv) (a) 3 ploughings with victory plough. (b) Transplanting. (c) 5 Kg/ha. (d) 20 cm. × 20 cm. (e) 1 to 2. (v) 125 Q/ha. of F.Y.M. (vi) Co.-7. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 8 cm. ; 13 cm. (x) 8, 11, 13.9.1963 ; 21, 22 8.1965 and 1, 2 9.1965.

2 TREATMENTS :

Main-plot treatments :

3 levels of irrigations : I_1=5 ha. cm., I_2=6·5 ha. cm. and I_3=8 ha. cm.

Sub-plot treatments :

3 levels of manures : M_1=26·9 Kg/ha. of N+13·4 Kg/ha. of P_2O_5, M_2=40·3 Kg/ha of N+20·2 Kg/ha. of P_2O_5 and M_3=53·8 Kg/ha. of N+26·9 Kg/ha. of P_2O_5

N and P were applied as basal dressing in the form of standard fertiliser No. 1 (N : P : K : : 12 : 60) in two splits, one at the time of sowing and the other half one month after planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 10 0 m. ×4·0 m. (b) 9·6 m.×3·6 m. (v) 20 cm.×20 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1963 and 65 (b) No. (v) and (vi) Nil. (vii) Since the sub-plot error variances are heterogeneous, results of individual years are presented below.

5. RESULTS :

63(209)

(i) 1885 Kg/ha. (ii) (a) 129·9 Kg/ha. (b) 134·9 Kg/ha. (iii) Main effect of M is highly significant. Interaction I×M is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	1875	1914	2008	1932
I_2	1736	1839	2093	1889
I_3	1912	1688	1900	1833
Mean	1841	1814	2000	1885

C.D. for M marginal means =91·8 Kg/ha.
C.D. for two M means at the same level of I=159·0 Kg/ha.
C.D. for two I means at the same level of M=162·3 Kg/ha.

65(33)

(i) 1336 Kg/ha. (ii) (a) 374·3 Kg/ha. (b) 343·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	1102	1356	1333	1264
I_2	1489	1339	1257	1362
I_3	1165	1491	1489	1382
Mean	1252	1395	1300	1336

Crop :- Ragi (*Main*). **Ref :- T.N. 60(101).**
Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To asses the efficacy of various fungicides in Controlling Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) July 1960/August 1960. (iv) (a) 3 ploughings. (b) Transplanting. (c) 3·5 Kg/ha. (d) 20 cm.×20 cm. (e) One. (v) N.A. (vi) Co.-5. (vii) Irrigated. (viii) 2 weedings. (ix) 30 cm. (x) Nov. 1960.

2. TREATMENTS :

10 fungicides : T_0=Control, T_1=Dithane 8·78 at 1 Kg/1000 litres, T_2=Ferban 0·5%, T_3=Ziram at 2 Kg/1000 litres, T_4=Bord. Mixture 1%, T_5=Cupravit at 2·5 Kg/1000 litres, T_6=Fungimas at 2·5 Kg/1000 litres, T_7=Micro cop at 1 Kg/300 litres, T_8=Colloidal copper at 1 Kg/400 litres and T_9=Fylotan at 1 Kg/400 litres.

All the treatments were given as sprays. The first round was given one month after transplanting and then a second round was given after 2 weeks.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 15 sq. m. (v) One row on either side (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of blast. (iii) Infestation count and yield of grain. (iv) to (vii) Nil.

5. RESULTS :

(i) 2808 Kg/ha. (ii) 607·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	2351	3207	2574	2998	3162	2921	2679	2459	2665	3068

Crop :- Ragi (*Monsoon*). **Ref :- T.N. 61(86).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To find out the efficacy of different fungicides in controlling Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ragi. (c) N.A. (ii) (a) Loamy. (b) N.A. (iii) Aug./Sept. 1961 (iv) (a) 3 ploughings (b) Transplanting. (c) 3·5 Kg/ha. (d) 20 cm. × 20 cm. (e) 1. (v) N.A. (vi) Co.-5. (vii) Irrigated. (viii) 2 weedings. (ix) 28 cm. (x) First week of Dec 1961.

2. TREATMENTS :

16 fungicides : T_0=Control, T_1=Dithane Z 78 at 1½ Kg/1000 litres, T_2=Bord. Mixture 1%, T_3=Ziram at 2 Kg/1000 litres, T_4=Wettable Sulphur at 10 Kg/1000 litres, T_5=Dithane D—14 at 1½ Kg/1000 litres of water+1 Kg. of Zn.Sul. in 1000 litres, T_6=Bordeaux mixture 0·5%, T_7=Ferban at 1 Kg/200 litres, T_8=Flit 406 at 2 Kg/1000 litres, T_9=Sulpher dust at 22·4 Kg/ha., T_{10}=Ceresan lime mixture at 22·4 Kg/ha., T_{11}=Agrosan dust at 22·4 Kg/ha., T_{12}=Micro cop at 1 Kg/320 litres, T_{13}=Parry cop at 2·5 Kg/1000 litres, T_{14}=Fytolan at 2·5 Kg/1000 litres and T_{15}=Ceresan lime dust at 22·4 Kg/ha. followed by Dithane Z 78 spray at 1½ Kg/1000 litres of water.

The treatments T_1 to T_8 and T_{12} to T_{14} were given as sprays and T_9 to T_{11} were given as dust. In T_{15} ceresan lime dust was applied as dust and Dithane Z-78 as spray. 3 rounds of spraying and dusting were given 3, 6 and 9 weeks after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5·1 Sq. m. (v) One row on both sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of blast. (iii) Infestation count and yield of grain. (iv) to (vii) Nil.

5. RESULTS :

(i) 1618 Kg/ha. (ii) 123·4 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	T_{15}
Av. yield	1107	1957	1705	1374	1601	1611	1685	1680	1670	1656	1982	1848	1265	1260	1399	2081

C.D.=176·0Kg/ha.

Crop :- Ragi (*Main*). **Ref :- T.N. 63(170).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the efficacy of various fungicides in controlling Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ragi. (c) N.A. (ii) (a) Loamy. (b) N.A. (iii) 25.6.63/18.7.63. (iv) (a) 3 ploughings. (b) Transplanting. (c) 3·5 Kg/ha. (d) 20 cm. × 20 cm. (e) 1. (v) N.A. (vi) Co.-3. (vii) Irrigated. (viii) 2 weedings. (ix) 12 cm. (x) Oct. 1963.

2. TREATMENTS :

12 fungicides : T_0=Control, T_1=Wettable Sulphur 0 5%, T_2=Microcop 0 3%, T_3=Ceresan lime Mixture at 22·4 Kg/ha., T_4=Dithane M-22 at 0·2%, T_5=Dithane 2·8 at 0·2%, T_6=Flit 406 at 0·2%, T_7=Sulphur dust at 22 4 Kg/ha., T_8=Agrosan dust at 22·4 Kg/ha., T_2=Nickel chloride 10 ppm, T_{10}=Coppesan 0·3 % and T_{11}=Bordeaux Mixture 1%.

Treatments T_1, T_2, T_4, T_5, T_6, T_9 to T_{11} were applied as sprays and T_3, T_7 and T_8 as dusts.
First round of spraying/dusting was given 20 days after transplanting and then, two more rounds were given at an interval of fortnight each.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 13·5 Sq. m. (v) One row on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of blast. (iii) Infestation count and yield of grain. (iv) to (vii) Nil.

5. RESULTS:

(i) 1415 Kg/ha. (ii) 236·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1315	1539	1371	1436	1339	1680
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	1524	1325	1352	1332	1354	1413

Crop :- Ragi (*Summer*). **Ref :- T.N. 63(169).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the efficacy of different fungicides in the control of Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cholam. (c) N.A. (ii) (a) Loamy. (b) N.A. (iii) 28.1.63/15.2.63. (iv) (a) 3 ploughings. (b) Transplanting. (c) 3·5 Kg/ha. (d) 20 cm. × 20 cm. (e) 1. (v) N.A. (vi) Co-7. (vii) Irrigated. (viii) 1 weeding. (ix) 9 cm. (v) 20.5.63.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 63(170) as above.

5. RESULTS :

(i) 1123 Kg/ha. (ii) 329·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	862	1001	1084	1055	1256	1201
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	1251	1112	1180	1160	1145	1164

Crop :- Ragi (*Main*). **Ref :- T.N. 63(171).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To find out the efficacy of various fungicides in controlling Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ragi. (c) N.A. (ii) (a) Loamy. (b) N.A. (iii) 7.10.63/4.11.63. (iv) (a) 3 ploughings. (b) Transplanting. (c) 3·5 Kg/ha. (d) 20 cm.×20 cm. (e) 1: (v) 84 Kg/ha. of N+25 Kg/ha. of P_2O_5+ 254 Q/ha. of F.Y.M. (vi) Co-3. (vii) Irrigated. (viii) 2 weedings. (ix) 24 cm. (x) Jan., 64.

2. TREATMENTS :

9 fungicides : T_0=Control, T_1=Agrosan dust at 22·4 Kg/ha. dust, T_2=Bordeaux mixture 1% spray, T_3=Ceresan lime mixture at 22·4 Kg/ha. dust, T_4=Dithane Z-78 at 0·2% spray, T_5=Flit 406 at 0·2% spray, T_6=Microcop at 0·3% spray, T_7=Sulphur dust at 22·4 Kg/ha. dust, and T_8=Wettable sulphur at 0·5% spray dust.

In all treatments first round of application 20 days after transplanting and then two more applications were given at an interval of a fortnight each.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5 m.×2 m. (v) One row on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible. (iii) Infestation count and yield of grain. (iv) to (vii) Nil.

5. RESULTS :

(i) 1445 Kg/ha. (ii) 315·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1208	1103	1343	1593	1665	1405	1360	1468	1858

Crop :- Ragi (*Monsoon*). **Ref :- T.N. 64(46).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the Ragi root aphids.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Chillies. (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 5.8.64/28.8.64. (iv) (a) Two ploughings and harrowing. (b) Transplanting. (c) 3·4 Kg/ha. (d) 22·9 cm.×15·2 cm. (e) 1. (v) 127 Q/ha. of F.Y.M. (vi) K-2. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 45 cm. (x) 12.12.64.

2. TREATMENTS :

8 fungicides : T_0=Control, T_1=Endrin grannules 15 gm. for every 20 ft. row length, T_2=Heptachlor grannules-15 gm. for 20 foot row length., T_3=Heptachlor 6% dust, T_4=B H.C. 10% dust, T_5=Malathion 4% dust, T_6=Endrin 0·1 % spray, and T_7=Parathion 0·3 % spray.

Both spraying and dusting were given 3 and 6 weeks after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 4·6 m.×1·8 m. (b) 4·0 m.×1·2 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible. (iii) Infestation count and grain yield. (iv) (a) 1963-64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Data 1963—N.A.

5. RESULTS :

(i) 4128 Kg/ha. (ii) 378·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	3546	4043	4079	4381	4191	4125	4579	4077

Crop :- Ragi. **Ref :- T.N. 64(151).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object : – To study the comparative efficacy of different fungicides in controlling blast disease in Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clay loamy. (b) N.A. (iii) 10.5.64/9.6.64. (iv) (a) 4 ploughings with cooper plough. (b) Transplanting. (c) 3·4 Kg/ha. (d) 15·2 cm.×15·2 cm. (e) 1 to 2. (v) 127 Q/ha. of C.M. (vi) Co.—7. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 24 cm. (x) 8.9.64.

2. TREATMENTS :

9 fungicides : T_0=Control (water spray), T_1=Bordeaux mixture 1%, T_2=Fytolan 0·3%, T_3=Fungimar 0·3%, T_4=Dithane Z—78 at 0·2%, T_5=Flit 406 at 0·2%, T_6=Wettable Sulphur 0·5%, T_7= Ceresan lime dust at 16·8 Kg/ha. and T_8=Micro cop. at 0·3%.

The fungicides were applied four times : First round was applied 20 days after sowing. The second, third and fourth rounds were applied at 15 days interval from transplanting with rocker type sprayer and tony duster.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 9·1 m.×35·6 m. (iii) 3. (iv) (a) 9·1 m.×4.0 m. (b) 7·3 m.×2·1 m. (v) 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of blast. Other diseases and pests negligible. (iii) Leaf and neck infection data and yield of grain. (iv) (a) 1964—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2372 Kg/ha. (ii) 152·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	2498	2365	2491	2379	2252	2397	2266	2314	2406

Crop :- Ragi. **Ref :- T.N. 64(152).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the comparative efficacy of different fungicides in controlling the blast disease in Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 8.12.64/4.1.65. (iv) (a) 4 ploughings with Cooper plough. (b) Transplanting. (c) 3·4 Kg/ha. (d) 15·2 cm.×15·2 cm. (e) 1 to 2. (v) 127 Q/ha.of C.M. (vi) A.K.P.—1. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 3 cm. (x) 12.3.65.

2. TREATMENTS :

9 fungicides : T_0=Control (water spray), T_1=Bordeaux mixture 1%, T_2=Breston 0·1%, T_3=Ceresan Lime dust at 22·4 Kg/ha., T_4=Fytolon 0·3%, T_5=Dithane Z—78 at 0·2%, T_6=Flit 406 at 0·2%, T_7=Wettable Sulphur 0·5% and T_8=Micro cop. 0·3%.

The fungicides were applied four times. First round was applied 20 days after sowing. The second, third and fourth rounds were applied at 15 days interval from transplanting with rocker type sprayer and tony duster.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 12·2 m.×41·1 m. (iii) 4. (iv) (a) 12·2 m.×4·6 m. (b) 10 4 m.×2·7 m. (v) Three rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of blast diseases and pests negligible. (iii) Leaf and neck infection data and yield of grain. (iv) (a) 1964—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1489 Kg/ha. (ii) 299·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1302	1381	1569	1670	1536	1574	1452	1475	1441

Crop :- Ragi. **Ref :- T.N. 64 (150).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the comparative efficacy of different fungicides in controlling blast disease in Ragi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (b) N.A. (iii) 4.1.64/31.1.64. (iv) (a) 4 ploughings with Cooper plough. (b) Transplanting. (c) 3·4 Kg/ha. (d) 15·2 cm.×15·2 cm. (e) 1 to 2. (v) 127 Q/ha. of C.M. (vi) A.K.P.—1. (vii) Irrigated. (viii) 2 hoeings and weedings. (ix) 0·3 cm. (x) 30.3.64.

2. TREATMENTS :

Same as in expt. no. 64(151) on page 304.

The first round was applied in the nursery 15 days after sowing and the other three rounds were applied in the main field at 15 days interval from transplanting with rocker type sprayer and tony duster.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 12·2 m.×41·1 m. (iii) 4. (iv) (a) 12·2 m.×4·6 m. (b) 10·1 m.×2·7 m. (v) 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of blast. Other diseases and pests negligible. (iii) Leaf and neck infection data and yield of grain. (iv) (a) 1964—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3142 Kg/ha. (ii) 219·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1984	2190	2011	1998	2131	2296	2395	2234	2043

Crop :- Ragi (*Main*). **Ref :- T.N. 64(58).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'DM'.**

Object :—To evolve a suitable control measure against Ragi blast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 125 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (ii) (a) Red loam. (b) N.A. (iii) N.A./29.8.64. (iv) (a) 4 ploughings. (b) Transplanting. (c) 40 Kg/ha. (d) 20 cm.×20 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+36 Kg/ha. of P_2O_5. (vi) K−2. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 46 cm. (x) 5.12.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N : $N_0=0$ and $N_1=34$ Kg/ha.

(2) 2 levels of K_2O : $K_0=0$ and $K_1=34$ Kg/ha.

Sub-plot treatments :

7 fungicides : S_0=Control, S_1=Ceresan lime mixture dust at 30 Kg/ha., S_2=Sulphur dust at 30 Kg/ha., S_3=Fytolon 0·25%, S_4=Dithane 0·15%, S_5=Wettable Sulphur 1% and S_6=Bordeaux mixture 1%.

Both dusting and sprayings were given three weeks after transplanting and then three more applications were given at fortnightly intervals.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3 m. ×1·8 m. (b) 2·6 m.×1·8 m. (v) one row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Fly beetle attack. (iii) Disease counts and grain yield. (iv) (a) 1962—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1969 Kg/ha. (ii) (a) 209·4 Kg/ha. (b) 268·4 Kg/ha. (iii) Main effects of N and S are highly significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	K_0	K_1	Mean
N_0	1810	1736	1843	1729	1689	1990	2190	1864	1847	1855
N_1	2070	2030	2163	1796	1997	2130	2397	2066	2101	2083
Mean	1940	1883	2003	1763	1843	2060	2294	1965	1974	1969
K_0	1983	1896	2017	1736	1796	2083	2244			
K_1	1896	1870	1990	1790	1890	2037	2344			

C.D. for N marginal means=89·6 Kg/ha.

C.D. for S marginal means=189-4 Kg/ha.

Crop :- Varagu. **Ref :- T.N. 64(S.F.T.).**

Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITION :

(i) (a) to (c) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)
N_1=35 Kg/ha. of N
N_2=70 Kg/ha. of N
P_1=35 Kg/ha. of P_2O_5
N_1P_1=35 Kg/ha. of N+35 Kg/ha of P_2O_5
N_2P_1=70 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as super & K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1 A_2 and A_3 are distributed as 3 on a kharif cereal, 3 on a rabi cereal, 3 on a cash crop and 2 on oilseed. All the three type-C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 expriments 11 villages are randomly selected in each block and in each village 3 expriments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type-C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964-only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E
Av. response of grain in Kg/ha.	85	163	56	203	214	316	316	29·3

Control yield=836 Kg/ha. ; No. of trials=4

Crop :- Varagu. **Ref :- T.N. 64(SFT).**

Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :—Type : A_2.To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)
N_1=35 Kg/ha. of N
P_1=35 Kg/ha. of P_2O_5
P_2=70 Kg/ha. of P_2O_5
N_1P_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_1P_2=35 Kg/ha. of N+ 70 Kg/ha. of P_2O_5
N_2P_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha of K_2O

N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 on page 307.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS ;

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	65	73	110	125	172	302	325	18·6

Control yield=816 Kg/ha. ; No. of trials=4

Crop : Varagu. **Ref :- T.N. 64(SFT).**

Site :- (District) : N. Arcot. **Type :- 'M'.**

Object :— Type A_3. To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)
N_1=35 Kg/ha. of N
K_1=35 Kg/ha. of K_2O
K_2=70 Kg/ha. of K_2O
N_1K_1=35 Kg/ha. of N+35 Kg/ha. of K_2O
N_1K_2=35 Kg/ha. of N+70 Kg/ha. of K_2O
N_2K_2=70 Kg/ha. of N+70 Kg/ha. of K_2O
$N_1P_1K_1$=35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O

N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in Type A_1 on page 307.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964-only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. yield of grain in Kg/ha.	56	96	135	164	201	270	225	17·4

Control yield=722 Kg/ha. ; No. of trials=3

Crop :- Potato (*Main*). **Ref :- T.N. 60(75), 61(39).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'M'.**

Object :— To study the availability of phosphate by the addition of organic matter and lime in the laterite soils of Nilgiris.

1. BASAL CONDITIONS :

(i) (a) Lupin-Potato for 60 (75) ; Nil for 61 (39). (b) Lupin for 60 (75) ; *Sanai* for 61 (39): (c) Nil for 60 (75) ; N.A. for 61 (39). (ii) Laterite soil. (iii) 9.4.1960 ; 20.4.1961. (iv) (a) 3 ploughings and forming ridges and furrrows. (b) Planting in furrow. (c) N.A. for 60 (75) ; 4700. Kg/ha. for 61 (39). (d) 15 cm. ×23 cm. (e) 1. (v) 90 Kg/ha. of N+112 Kg/ha. of K_2O. (vi) Great scot. (vii) Unirrigated. (viii) 2 weedings. (ix) 67 cm., 144 cm. (x) 16, 17.8.1960 ; 28.8.1961.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(i) 6 sources of P_2O_5 at 225 Kg/ha. : S_0=No P_2O_5, S_1=Rock phos ; S_2=B.M., S_3=Super, S_4=Silica phos and S_5=Nanjanad mixture.

(2) 2 levels of lime : L_0=No lime and L_1=84 Q/ha. of lime.

(3) 2 levels of compost : C_0=No compost and C_1=67·2 Q/ha. of compost.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 24. (b) N.A. (iii) 3. (iv) (a) 6·7 m.×3·1 m. (b) 10·1 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good for 60 (75) ; poor for 61 (39). (ii) Affected by late blight disease the crop for 60 (75) ; severe attack of blight disease for 61 (39). Fytolon and bordeaux mixture were sprayed for both the expts. (iii) Yield of tubers. (iv) (a) 1958-1961 (modified in 1960). (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error varinces are heterogeneous, and treatments×years interaction is absent.

5. RESULTS:

Av. yield of Tuber in Q/ha.

Years	S_0	S_1	S_2	S_3	S_4	S_5	Sig.
1960	134.2	140·1	166·1	206·1	182·3	222·2	**
1961	11·3	13·4	17·7	31·3	26·3	30·5	**
Pooled	72·7	76·8	91·8	118.7	104·3	126·3	—

Years	L_0	L_1	Sig.	C_0	C_1	Sig.	G.M.	S.E./plot
1960	178.4	172·0	N.S.	170·6	179·8	N.S.	175·2	42·8
1061	22·0	21·5	N.S.	21·9	21·6	N.S.	21·8	6·3
Pooled	100·2	96·7	—	96·2	100·7	—	98·4	25·3

Crop :- Potato (*Main*). **Ref :- T.N. 62(162).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'M'.**

Object :— To maximize the availability of phosphate in the soil to the plants.

1. BASAL CONDITIONS :

(i) (a) Potato follow green manure. (b) Lupin. (c) Not manured. (ii) Lateritic soil. (iii) 18.3.1962. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2500 Kg/ha. (d) 46 cm.×23 cm. (e) One. (v) As per treatment. (vi) Great scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 108 cm. (x) 1.9.1962.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(i) 3 levels of lime : M_0=0 M_1=3360 Kg/ha. and M_2=12·5 m. tonnes/ha.

(2) Three levels of P_2O_5 : P_0=0, P_1=112, and P_2=224 Kg/ha.

(3) 2 sources of P_2O_5 : S_1=Superphosphate and S_2=Rock phosphate.

All the fertilizers were applied after time of planting of Potato. The placement method of application was adopted.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×3·7 m. (b) 3·7 m.×2·7 m. (v) 91 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1962 only. (b) and (c) Nil. (v) to (vii) Nil.

4. RESULTS :

(1) 123·2 Q/ha. (ii) 45·7 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tubers in Q/ha.

	P_0	P_1	P_2	S_1	S_2	Mean
M_0	105·8	103·6	143·9	119·5	116·1	117·8
M_1	107·0	126·0	108·1	123·6	103·8	113·7
M_2	111·4	153·4	149·5	153·4	122·8	138·1
Mean	108·1	127·7	133·8	132·2	114·2	123·2
S_1	112·7	135·1	148·7			
S_2	103·4	120·2	119·1			

Crop :- Potato (*Main*). **Ref :- T.N. 63(218).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'M'.**

Object :— To maximise the availability of phosphate in the soil to the plants.

1. BASAL CONDITIONS :

(i) (a) Potato green manure. (b) Lupin. (c) Not manured. (ii) Laterite soil. (iii) 20.3.1963. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows by hand. (c) 2500 Kg/ha. (d) 46 cm.×23 m. (e) One. (v) 12·5 m. tonnes/ha. F.Y.M.+2180 Kg/ha. Nanjanad Mixture. (vi) Great scot. (vii) Unirrigated. (viii) Weeding, hoeing and earthing up. (ix) 90 cm. (x) 30.8.1963.

2. TREATMENTS :

3 main plot treatments : M_0=Control, M_1=Mag. oxide 112 Kg/ha., M_2=Sod. chloride at 112 Kg/ha.

10 sub-plot treatments : S_0=Control, S_1=Super phos @ 112 Kg/ha. of P_2O_5, S_2=Super phos @ 224 Kg/ha. of P_2O_5, S_3=Rock phos @ 112 Kg/ha. of P_2O_5, S_4=Rock phos @ 224 Kg/ha. P_2O_5, S_5=Ammo phos @ 112 Kg/ha. of P_2O_5, S_6=Ammo phos @ 224 Kg/ha. of P_2O_5, S_7=Bone meal @ 112 Kg/ha. of P_2O_5, S_8=Bone meal @ 224 Kg/ha. of P_2O_5, and S_9=Nanj. Mixture (88 Kg/ha. of N+224 Kg/ha. of P_2O_5+112 Kg. Kg/ha. of K_2O).

All fertilizers were applied at the time of planting of Potato in the placement method of application.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication 10 sub-plots/main-plot. (b) N.A (iii) 3. (iv) (a) 4·6 m.×3·7 m. (b) 3·1 m.×2·7 m. (v) ·76 cm.×·46 cm. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1962 to 1963 (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i)47·3 Q/ha. (ii) (a) 37·9 Q/ha. (b) 17·1 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tubers in Q/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	Mean
M_0	41·6	56·2	50·6	59·8	41·6	56·2	48·8	43·4	47·0	47·0	49 2
M_1	29·0	47·0	23·6	36·2	30·8	41·6	63·4	29·0	32·6	47·0	38·0
M_2	45·2	59·8	56·2	54·4	48·8	43·4	61·6	70·6	59·8	47·0	54·7
Mean	38·6	54·3	43·5	50·1	40·4	47·1	57·9	47·7	46·5	47·0	47·3

Crop :- Potato (*Rabi*). **Ref :- T.N.62(163), 63(220).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'M'.**

Object :— To maximise the availability of phosphate to the plants and to see the effect on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) Buck wheat. (c) Nil. (ii) Lateritic soil. (iii) 4.10.1962 ; 18.9.1963. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 25 Q/ha. (d) 46 cm.×23 cm. (e) 1. (v) Nil for 62 (163) ; 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture for 63 (220). (vi) Great Scot. (vii) Un-irrigated. (viii) Weeding, hoeing and earthing up. (ix) 38 cm. ; 53 cm. (x) 7.1.1963 ; 3.1.1964.

2. TREATMENTS :

Main-plot treatments :

5 inorganic treatments : M_0=Control, M_1=125 Q/ha. of F.Y.M., M_2=3360 Kg/ha. of lime, M_3=112 Kg/ha. of Mag. Oxide and M_4=112 Kg/ha. of Sodium chloride.

Sub-plot treatments :

2 sub-plot treatments : S_0=Control, S_1=Super at 112 Kg/ha., S_2=Super at 224 Kg/ha., S_3=Rock Phos. at 112 Kg/ha., S_4=Rock Phos. at 224 Kg/ha., S_5=Ammo. phos at 112 Kg/ha., S_6=Ammo. phos. at 224 Kg/ha., S_7=B.M. at 112 Kg/ha. and S_8= B.M. at 224 Kg/ha.

Fetilizers applied at planting by placement.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 6·7 m. ×3·1 m. (b) 4·4 m ×2·4 m. (v) 115 cm.×35 cm. (vi) Yes.

4. GENERAL ;

(i) Good. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1962-1963. (b) No. (c) Given in 5. Results. (v) N.A. (vi) Nil. (vii) Error variences are homogeneous and Treatments×years interaction is absent.

5. RESULTS ;

(i) 57·4 Q/ha. (ii) (a) 22·7 Q/ha. (based on 20 d.f. made up of pooled error and interaction of treatment M with years). (b) 8·4 Q/ha. [200 d.f. made up of pooled error and interaction of treatments S and M×S with years]. (iii) Main effect of S alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Mean
M_0	55·1	69·2	61·1	58·9	56·6	64·1	67·0	64·8	58·9	61·7
M_1	50·0	62·6	59·6	53·7	57·6	65·6	58·0	56·1	54·3	57·5
M_2	50·6	47·6	52·9	43·2	46·2	55·1	57·4	52·9	52·1	50·9
M_3	54·4	64·1	65·6	53·6	56·6	70·1	70·9	70·8	62·6	63·2
M_4	48·4	56·0	52·1	49·0	55·2	55·8	56·7	53·6	55·4	53·6
Mean	51·7	59·9	58·2	51·7	54·4	62·1	62·1	59·6	56·7	57·4

C.D. for S=4·3 Q/ha.

Av. yield of tuber in Q/ha,

Years	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	Sig.
1962	41·4	47·1	45·3	43·5	44·7	50·4	51·9	44·7	44·1	**
1963	62·0	72·7	71·2	59·9	64·2	73·9	72·3	74·6	69·3	**
Pooled	51·7	59·9	58·2	51·7	54·5	62·1	62·1	59·7	56·7	**

Years	M_0	M_1	M_2	M_3	M_4	Sig.	G.M.	S.E./plot	
								Main plot	Sub plot
1962	51·3	43·9	40·4	50·7	43·2	N.S.	45·9	28·3	7·6
1963	72·2	71·2	61·4	75·7	64·0	N.S.	68·9	20·6	8·7
Pooled	61·7	57·5	50·9	63·2	53·6	N.S.	57·4	22·7	8·4

Crop :- Potato (*Summer*). **Ref :- T.N. 60(122).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'M'.**

Object :—To compare the relative merits of different Green Manure in increasing the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) As per treatment. (c) Not manured. (ii) Laterite soil. (iii) 24.3.1960. (iv) (a) 3 ploughings. (b) Planting the Setts along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12·5 M. tonnes/ha. of F.Y.M.+2180 Kg/ha. Nanjanad Mixture. (vi) Great Scof. (vii) Unirrigated. (viii) Weeding hoeing and earthing up. (ix) 57 cm. (x) 21.7.60.

2. TREATMENTS :

4 treatments of green manure : T_1=Control (No Green Manure), T_2=Lupin, T_3=Buck wheat and T_4=Rye. Green manure applied as previous crop.

Green manure was grown in the plot and incorporated and then potato was planted. The quantity of green manure produced by the various green manures are as follows.

1. Lupin=10027 Kg/ha. 2. Buck wheat=7265 Kg/ha. 3. Rye=5085 Kg/ha.

3. DESIGN :

(i) R.B D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20 sq. metere. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No incidence. (iii) Yield of tubers. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 137·8 Q/ha. (ii) 13·5 Q/ha. (iii) The treatment differences are significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	144·3	148·5	134·3	124·2

C.D.=16·6 Q/ha.

Crop :- Potato (*Summer*). **Ref :- T.N. 60(116), 61(112), 62(153), 63(207), 64(208).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'MV'.**

Object :—To determine the optimum fertilizer requirement of a few popular varieties of Potato for producing economic yield.

1. BASAL CONDITIONS :

(i) (a) G.M.-Potato. (b) Lupin. (c) Nil. (ii) Laterite soil, (iii) 29.3.60 ; 22.4.61 ; 16.3.62 ; 9.3.63 ; 6.3.64. (iv) (a) 3 ploughings. (b) Dibbling in furrows for 61(112) ; planting the seeds along furrows for others. (c) 2400 Kg/ha. (d) 23 cm. × 46 cm. (e) 1. (v) N.A. for 62(153) and 64(208) ; 123·5 Q/ha. of F.Y.M. for others. (vi) As per treatments. (vii) Un-irrigated. (viii) Hoeing and weeding for 60(116) and 61(112), hoeing, weeding and earthing up for others. (ix) 91 cm., 140 cm., 130 cm., 98 cm., 147 cm. (x) 27.9.60. ; 21.9.61 ; 5, 6.9.62 ; 13.9.63 ; 21.9.1964.

2. TREATMENTS :

Main-plot treatments:

4 varieties : V_1=President, V_2=Bencruachan, V_3=Eigenheimer and V_4=Great scot.

Sub-plot treatments :

3 manurial treatments : M_1=89 Kg/ha. of N+224 Kg/ha. of P_2O_5+112 Kg/ha. of K_2O, M_2=112 Kg/ha. of N+246 Kg/ha. of P_2O_5+134 Kg/ha. of K_2O and M_3=134 Kg/ha. of N+269 Kg/ha. of P_2O_5+157 Kg/ha. of K_2O.

N and P_2O_5 are supplied in the form of organic and inorganic in equal quantities as basal dressing. K_2O as Mur. Pot. is applied as basal dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 5·5 m. × 1·8 m. (b) 5·0 m. × 1·6 m. (v) 23 cm. × 11 cm. (vi) Yes.

4. GENERAL :

(i) Good for 60(116), 61(112), 62(153) ; Not good for others. (ii) Mild infection with late blight for 60(116) Dithane was sprayed once ; No incidence for 61(112) and 62(153) ; Infection with late blight for 63(207) and 64(208). Dithane was sprayed twice. (iii) Yield of tubers. (iv) (a) 1960—1964. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Main-plot and sub-plot error variances are heterogeneous. Results of individual years are presented under 5. Results.

5. RESULTS :

60(116)

(i) 120·7 Q/ha. (ii) (a) 37·8 Q/ha. (b) 20·4 Q/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	V_1	V_2	V_3	V_4	Mean
M_1	92·4	168·9	86·8	129·7	119·4
M_2	86·8	171·7	97·1	127·9	120 9
M_3	96·1	168·9	98·9	123·2	121·8
Mean	91·8	169·8	94·3	126·9	120·7

C.D. for V marginal means=26·9 Q/ha.

61(112)

(i) 66·9 Q/ha. (ii) (a) 37·6 Q/ha. (b) 21·4 Q/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	V₁	V₂	V₃	V₄	Mean
M_1	37·8	77·1	71·3	91·3	69·4
M_2	29·6	78·0	72·4	89·2	67·3
M_3	33·3	78·0	57·0	88·1	64·1
Mean	33·6	77·7	66·9	89·5	66·9

C.D. for V marginal means=26·6 Q/ha.

62(153)

(i) 187·8 Q/ha. (ii) (a) 59·3 Q/ha. (b) 36 8 Q/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	V_1	V_2	V_3	V_4	Mean
M_1	127·9	242·7	130·7	220·3	180·4
M_2	151·2	216·5	144·7	227·7	185·0
M_3	138·1	226·8	168·0	259·5	198·1
Mean	139·1	228·7	147·8	235·8	187·8

C.D. for V marginal means=42·2 Q/ha.

63(207)

(i) 39·0 Q/ha. (ii) (a) 22·0 Q/ha. (b) 11·6 Q/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	V_1	V_2	V_3	V_4	Mean
M_1	29·2	39·5	24·9	44·8	34·6
M_2	31·5	34·4	40·1	60·2	41·6
M_3	28·7	39·0	38.7	56·3	40·7
Mean	29·8	37·6	34·6	53·8	39·0

C.D. for V marginal means=15·6 Q/ha.

64(208)

(i) 38·0 Q/ha. (ii) (a) 40·2 Q/ha. (b) 17·6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tuber in Q/ha.

	V_1	V_2	V_3	V_4	Mean
M_1	30·0	29·6	34·0	58·2	1055
M_2	28·7	47·8	24·0	55·1	1194
M_3	37·8	39·8	16·6	54·8	1400
Mean	32·2	39·1	24·9	56·0	1216

Crop :- Potato (*Autumn*). **Ref :- T.N. 60(105), 61(95), 62(135), 63(188).**
Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To assess the optimum inward slope required in bench terrace for Potato crop.

1. BASAL CONDITIONS :

(i) (a) Potato-G.M. for 61(95) ; Buck wheat-Potato for others. (b) Buck wheat. (c) Nil. (ii) Laterite soil. (iii) 14.9.60 ; 6.9.61 ; 27.9.62 ; 6.9.63. (iv) (a) 2 ploughings, forking and breaking clods. (b) Planting along furrows. (c) 50000 seeds/ha. for 61(95) ; 2500 Kg/ha. for others. (d) 60 cm. × 30 cm. for 61(95) ; 45 cm. × 23 cm. for others. (e) 1. (v) 120 to 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Un-irrigated. (viii) Hoeing, weeding and earthing up. ((ix) 48 cm., 40 cm., 42 cm., 70 cm. (x) 25 12.60 ; 21.12.61 ; 3.1.63 ; 14.12.63.

2. TREATMENTS :

3 levels of droping between the outer and inner edge of the terrace ; S_1=15 cm. ; S_2=23 cm. and S_3=30 cm. The width of the terrace is 5 metres.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 16·8 m. × 4·9 m. for 61(95) ; 40·5 sq. m. for others. (b) 8·2 m. × 4·9 m. for 61(95) ; 20·3 sq. m. for others. (v) 426 cm. on either side for 61(95) ; N.A. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild infection with late blight for 60(105). One spraying with Dithane was done ; No incidence for others. (iii) Yield of tuber. (iv) (a) 1960-1963. (b) and (c) No. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Variances are heterogeneous and Treatments × years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

60(105)

(i) 238·0 Q/ha. (ii) 38·7 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	239·7	230·4	243·9

61(95)

(i) 124·7 Q/ha. (ii) 8·3 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yieldof tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	119·0	127·1	128·0

62(135)

(i) 75·4 Q/ha. (ii) 10·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	79·0	73·4	73·9

63(188)

(i) 158·9 Q/ha. (ii) 13·4 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yleld of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yleld	154·0	161·8	161·0

Crop :- Potato (*Autumn*). **Ref :- T.N. 60(117), 61(113).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To assess the performance in yield and disease resistance of the bolter plants in the variety Great Scot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) Buck-Wheat. (c) Nil. (ii) Laterite soil. (iii) 14.9.60; 7.9.61. (iv) (a) 3 ploughings and breaking of clods. (b) Placing seed tubers in furrows and covering with soil. (c) 2500 Kg/ha. (d) 46 cm.×23 cm. (e) N.A. (v) 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot (medium). (vii) Unirrigated. (viii) Hoeing, weeding and earthing up once. (ix) 48 cm.; 39 cm. (x) 18.1.61; 10.12.61.

2. TREATMENTS :

2 types of seedlings : T_1=Normal and T_2=Bolter plants.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 15. (iv) (a) 20·2 sq. m. (b) 10·1 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild infection of late blight disease which was promptly controlled. (iii) Yield of tuber. (iv) (a) 1960—61. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vi) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS:

(i) 132·3 Q/ha. (ii) 1·6 Q/ha. (based on 1 d.f. made up of Treatments×years interaction). (iii) Treatment difference is not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_1	T_2
Av. yield	132·2	132·4

Av. yield of tuber in Q/ha.

Years	T_1	T_2	Significance	G.M.	S.E /plot
1960	105·3	107·0	N.S.	106·2	19·5
1961	159·1	157·7	N.S.	158·4	10·0
Pooled	132·2	132·4	N.S.	132·3	1 6

Crop :- Potato (*Autumn*). **Ref :- T.N. 61(118).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To evaluate the effect of mulching on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato — G.M. (b) Buck Wheat. (c) Not manured. (ii) Laterite soil. (iii) 18.9.61. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2500 Kg/ha. (d) 60 cm.×23 cm. (e) 1. (v) 12·5 m. tonnes/ha. of F.Y.M.+2180 Kg/ha. of Nanja. Mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 38 cm. (x) 2.1.62.

2. TREATMENTS :

3 cultural treatments : T_0=Control, T_1=Polythene 100 guage and T_2=Polythene 200 guage.
Mulching was done on the date of planting Potato. As soon as the planting of Potato was over the polythene sheets (as per treatment) were covered over the ridges and tagged to the soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 3·4 m.×3·1 m. (b) 2·9 m.×2·8 m. (v) 23 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No infection. (iii) Yield of Potato in different grades. (iv) (a) 1961—only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 138·1 Q/ha. (ii) 9·7 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2
Av. yield	122·9	148·8	142·5

C.D.=10·4 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 64(190).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To assess the optimum inward slopes required in bench terraces for Potato crop.

1. BASAL CONDITIONS :

(i) (a) Potato—Buck Wheat. (b) Buck wheat. (c) Nil. (ii) Laterite soil. (iii) 29.9.64. (iv) (a) 2 ploughings, forkings and breaking the clods. (b) Planting the seeds along furrows. (c) 2500 Kg/ha. (d) 45 cm.× 23 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanj. mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 39 cm. (x) 12.1.65.

2. TREATMENTS :

6 treatments : T_1=No drop between the outer and inner edge of the terrace for 5 m. width of terrace across the slope, T_2=15 cm. drop between the outer and inner edge of the terrace for 5 m. width of terrace across the slope, T_3=30 cm. drop between the outer and inner edge of the terrace for 5 m. width of terrace across the slope, T_4=No drop between the outer and inner edge of the terrace for 5 m. width of terrace along the slope, T_5=15 cm. drop between the outer and inner edge of the terrace for 5 m. width of terrace along the slope and T_6=30 cm. drop between the outer and inner edge of the terrace for 5 m. width of terrace along the slope.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 40·5 sq. m. (b) 20·3 sq. m. (v) 3 rows on both sides. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Severe infection of late blight. Dithane was sprayed twice. (iii) Germination count, height measurements and yield of tubers. (iv) (a) 1964—only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21·6 Q/ha. (ii) 3·9 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yieid	20·4	22·2	22·9	21·6	21·6	21·0

Crop :- Potato (*Summer*). **Ref :- T.N. 60(118), 61(114).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To assess the performance in yield and disease resistance of the bolter plants in the variety Great Scot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) Lupin. (c) Nil. (ii) Laterite soil. (iii) 2.4.60, 4.4.61. (iv) (a) 3 ploughings and breaking clods. (b) Placing seed tubers in furrows and covering with soil. (c) 2500 Kg/ha. (d) 46 cm. × 23 cm. (e) N.A. (v) 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot (medium). (vii) Unirrigated. (viii) Hoeing, weeding and earthing up once. (ix) 68 cm.; 171 cm. (x) 13.8.60; 23.9.61.

2. TREATMENTS :

2 types of seedlings : T_1=Normal and T_2=Bolter plants.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 15. (iv) (a) 20·2 sq. m. (b) 10·1 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild infection of late blight disease. (iii) Yield of tuber. (iv) (a) 1960—61. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Comparatively very low yield for 61(114). Variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

(i) 94·8 Q/ha. (ii) 0·2 Q/ha. (based on 1 d.f. made up of Treatments × years interaction). (iii) Treatment difference is highly significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_1	T_2
Av. yield	87·4	102·2

C.D.=1·4 Q/ha.

Av. yield of tuber in Q/ha.

Years	T_1	T_2	Significance	G.M.	S E./plot
1960	102·9	117·6	*	110·3	11·36
1961	71·8	86·8	N.S.	79·3	20·64
Pooled	87·4	102·2	**	94·8	0·15

Crop :- Potato (*Summer*). **Ref :- T.N. 60(12), 61(99), 63(193), 64(192).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To fix the optimum depth of cultivation for opening the land for planting Potato.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 3.4.60; 15.4.61; 10.3.63; 9.3.64. (iv) (a) As per treatments. (b) Planting seeds along furrows. (c) 25 Q/ha. (d) 61 cm. × 20 cm. for 60(12); 45 cm. × 23 cm. for others. (e) N.A. for 60(12); 2 for 64(192); 1 for others. (v) 2180 Kg/ha. of Nanjanad mixture for 60(12); 124 Q/ha of F.Y.M.+2180 Kg/ha. of Nanjanad mixture for others. (vi) Great Scot (medium). (vii) Unirrigated. (viii) Hoeing, weeding and earthing up once. (ix) 97 cm.; 140 cm.; 98 cm.; 148 cm. (x) 4.10.60; 13.9.61; 11.9.63; 23.9.64.

2. TREATMENTS :

3 depths and methods of cultivation : C_1=10 cm. with firefly plough, C_2=15 cm. with victory plough and C_3=23 cm. with digging fork.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 26·2 m.×3·4 m, for 60(12); N.A. for others. (iii) 8 for 60(12); 7 for others. (iv) (a) 22·1 sq. m. for 60(12) N.A. for others. (b) 11·1 sq. m. for 60(12); 11·6 m.×7·0 m. for others. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Severe incidence of late blight for 63(193). Dithane was sprayed six times; Incidence of late blight for 64 (192). Dithane and Bordeaux were sprayed once. Tuber yield. (iv) (a) 1957—1964 (modified in 1959 and then agatn modified for only 1962) (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Results of expt. no. 59(18) have also been included for giving combined results. Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 104·2 Q/ha. (ii) 12·5 Q/ha. (based on 8 d.f. made up of Treatments×years interaction). (iii) Treatment differences are significant. (iv) Av. yield of tuber in Q/ha.

Treatment	C_1	C_2	C_3
Av. yield	90·2	111·0	111·4

C.D.=18·3 Q/ha.

Years	C_1	C_2	C_3	Sig.	G.M.	S.E./plot
1960	111·8	134·3	134·2	NS	126·8	24·2
1961	51·2	75·2	75·2	**	67.2	12·3
1963	63·4	70·1	71·4	N.S.	68·3	8·0
1964	37·2	90·1	92·6	**	73·3	15·8
Pooled	90·2	111·0	111·4	**	104·2	12·5

Crop :- Potato (*Summer*).

Site :- Agri. Res. Stn.,
Nanjanad.

Ref :- T.N. 60(104), 61(94), 62(134), 63(187), 64(189).

Type :- 'C'.

Object :—To study the effect of various inward slopes on the yield of Potato crop.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. for 61(94) and 62(134); Potato—*Lupin* for others. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 21.4.60; 27.4.61; 21 3.62: 5.4.63; 31.3.64. (iv) (a) 2 ploughings, forking and breaking clods. (b) Planting along furrows. (c) 50000 seeds/ha. for 61(94); 2500 Kg/ha. for others. (d) 60 cm.×30 cm. for 61(94) and 63(187); 45 cm.×23 cm. for others. (e) 1. (v) 120 to 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 88 cm.; 132 cm.; 139 cm.; 91 cm.; 102 cm. (x) 30.9.60; 3.9.61; 27.9.62; 12.9.63; 18.8.64.

2. TREATMENTS :

3 levels of droping between the outer and inner edge of the terrace : S_1=15 cm., S_2=23 cm. and S_3=30 cm. The width of the terrace is 5 metres.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 16·8 m.×4·9 m. for 61(94); 81·0 sq. m. for others. (b) 8·2 m.×4·9 m. for 61(94); 40·5 sq. m. for others. (v) 426 cm. on either side for 61(94); N.A. for others. (vi) Yes.

4. GENERAL :

(i) Poor for 61(94); Good for others. (ii) No incidence for 61(94); Incidence of late blight for others. Dithane was sprayed. (iii) Yield of tuber. (iv) (a) 1960—64. (b) No. (c) No. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

60(104)

(i) 230·3 Q/ha. (ii) 50·9 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	227·4	226·8	236·6

61(94)

(i) 18·7 Q/ha. (ii) 5·8 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	19·3	17·6	19·2

62(134)

(i) 101·1 Q/ha. (ii) 19·7 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	113·1	86·8	103·5

63(187)

(i) 84·9 Q/ha. (ii) 18·6 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	87·4	79·2	88·1

64(189)

(i) 59·1 Q/ha. (ii) 19·3 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	S_1	S_2	S_3
Av. yield	59·6	60·5	57·3

Crop :- Potato (*Main*). **Ref :- T.N. 62(76), 63(96), 64(107), 65(18).**

Site :- Private Holding Res. Stn., Ootacamund, Nilgiris. **Type :- 'C'.**

Object :—To determine the suitable direction of furrows and rotation of crops for Potato.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) 125 Q/ha. of F.Y.M. as basal dressing for potato crop+22·5 Q/ha. of Nanjanad mixture. (ii) Laterite. (iii) 23.3.62 ; 23.3.63 ; 14.3.64 ; 31.3.65. (iv) (a) Forking, breaking of clods and making ridges and furrows. (b) Placed in furrows and covered with soil. (c) 2240 Kg/ha. (d) No definite spacing. (e) 1. (v) 125 Q/ha. of F.Y.M. as basal dressing and 22·5 Q/ha. of Nanjanad mixture at sowing. (vi) Great Scot (early). (vii) Unirrigated. (viii) 1 weeding and earthing up (ix) 67·5 cm. ; 46 cm. ; 117 cm., 48·6 cm. (x) 31.7.62 ; 1.8.63 ; 17.8.64 ; 16.8.65.

2. TREATMENTS :

Main-plot treatments :

5 crop rotations : R_1=Potato after Lupin, R_2=Potato after Rye, R_3=Potato after wheat, R_4=Potato after Potato and R_5=Potato after buck wheat.

Sub-plot treatments :

2 directions of furrows : D_1=Along the contour and D_2=Across the contour.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication and 2 sub-plots/main plot. (b) N.A. (iii) 5. (iv) (a) and (b) 13·4 m.×3·1 m. (v) Nil. (vi) Yes.

4 GENERAL :

(i) Satisfactory. (ii) Incidence of late blight disease ; controlled by spraying Dithane. (iii) Yield of tubers. (iv) (a) 1262-65. (b) Yes. (c) Results of combined analysis given under 5. Results. (v) and (vi) Nil. (vii) Error variances of main plot and sub-plot are homogeneous and both the Treatments×years interacttions are absent.

5. RESULTS :

(i) 205·1 Q/ha. (ii) (a) 40·3 Q/ha. (based on 76 d.f. made up of Treatments×years interaction and pooled error). (b) 21·6 Q/ha. (based on 95 d.f. made up of various components of Treatments×years interaction and pooled error). (iii) Main effect of R alone is highly significant. (iv) Av. yield of potato in Q/ha.

	R_1	R_2	R_3	R_4	R_5	Mean
D_1	214·1	184·2	192·3	225.8	198·2	202·9
D_2	214·4	193·8	187.8	233·9	207·2	207·4
Mean	214·2	189·0	190·0	229·8	202·7	205·7

C.D. for R marginal means=18·0 Q/ha.

Av. yield of tuber in Q/ha.

Years	R_1	R_2	R_3	R_4	R_5	Sig.
1962	258.3	202·3	223·9	260.3	226·1	*
1963	272·0	231·2	232·9	258·8	243·2	*
1964	176·6	163·7	163·2	237·6	182·1	*
1965	162·7	150·2	140·2	158·8	159·5	N.S.
Pooled	214·2	189·0	190·0	229·8	202·7	**

Years	D_1	D_2	Significance	G.M.	S.E./plot	
					Main plot	Sub plot
1962	230·5	237·8	N.S.	234·2	28·6	25·3
1963	244·2	251·0	N.S.	247·6	30·2	20·6
1964	182·7	186·5	N.S.	184·6	39·3	22·7
1965	154·2	154 3	N.S.	154·3	50·6	23·2
Pooled	202·9	207·4	N.S.	205·1	40·3	21·6

Crop :- Potato (*Main*). **Ref :- T.N. 60(114), 61(110), 62(150), 63(208), 64(209).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'CM'.**

Object :—To study the interaction between the quantity of fertilizer applied and the seed size of Potato.

1. BASAL CONDITIONS :

(i) (a) G.M.-Potato for 61(110), 63(208) ; *Lupin*-Potato for others. (b) *Lupin*. (c) Nil. (iii) Laterite soil. (iii) 31.3.60 ; 22.4.61 ; 14.3.62 ; 11.3.63 ; 18.3.64. (iv) (a) 3 ploughings and breaking of clods. (b) Planting along ridges and furrows. (c) 2400 Kg/ha. (d) 46 cm.×23 cm. (e) 1. (v) 123·5 Q/ha. of F.Y.M. (vi) Great scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 87 cm., 140 cm., 126 cm., 63 cm., 148 cm., (x) 5.9.60 ; 22.9.61 ; 25.9.62 ; 23.7.63 ; 26.9.64.

2. TREATMENTS :

Main-plot treatments :

4 seed sizes : S_1=21 to 28 gm., S_2=28 to 42 gm., S_3=42 to 56 gm. and S_4=56 to 70 gm.

Sub-plot treatments :

4 levels of Nanjanad mixture : M_1=21·8, M_2=24·5, M_3=27·2 and M_4=30·0 Q/ha.

Mixture was applied as basal dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 20 sq. m. (b) 10 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor for 64(209) ; Good for others. (ii) Mild infection with late blight disease for 60(114), 61(110). Dithane was sprayed ; No incidence for 62(150) ; Severe incidence of late blight for 63(208). Dithane sprayed twice ; Severe incidence of late blight besides heavy ground frost for 64(209). Dithane was sprayed twice. (iii) Tuber yield. (iv) (a) 1960-1964. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous therefore individual years results are presented below.

5. RESULTS :

60(114)

(i) 208·5 Kg/ha. (ii) (a) 31·9 Q/ha. (b) 49·8 Q/ha. (iii) Main effect of M alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	S_1	S_2	S_3	S_4	Mean
M_1	179·2	185·2	197·1	188·9	187·6
M_2	181·4	217·3	224·7	213·5	209·2
M_3	203·1	207·6	203·1	189·7	200·9
M_4	226·2	234·5	253·9	230·0	236·2
Mean	197·5	211·2	219·7	205·5	208·5

C.D. for M marginal means=18·4 Q/ha.

61(110)

(i) 157·9 Q/ha. (ii) (a) 27·3 Q/ha. (b) 27·2 Q/ha. (iii) Main effect of M is highly significant and that of S is significant. (iv) Av. yield of tuber in Q/ha.

	S_1	S_2	S_3	S_4	Mean
M_1	107·5	111·3	122·5	123·2	116·1
M_2	151·6	174·0	178·5	173·2	169·3
M_3	149·3	167·3	188·2	180·0	171·2
M_4	174·0	168·8	176·2	180·0	174·8
Mean	145·6	155·4	166.4	164·1	157·9

C.D. for M marginal means=15·8 Q/ha.
C.D. for S marginal means=16·8 Q/ha.

62(150)

(i) 152·8 Q/ha. (ii) (a) 19·9 Q/ha. (b) 27·5 Q/ha. (iii) Main effect of M is highly significant and that of S is significant. (iv) Av. yield of tuber in Q/ha.

	S_1	S_2	S_3	S_4	Mean
M_1	102·4	118·7	126·2	132·2	119·9
M_2	121·7	141·1	141·9	149·3	138·5
M_3	155·3	156·8	177·0	174·7	166·0
M_4	172·5	194·1	200·1	180·0	186·7
Mean	138·0	152·7	161·3	159·0	152·8

C.D. for M marginal means=11·5 Q/ha.
C.D. for S marginal means=16·9 Q/ha

63(208)

(i) 150·1 Q/ha. (ii) (a) 18·1 Q/ha. (b) 16·2 Q/ha. (ii) Main effect of M is highly significant and that of S is significant. (iv) Av. yield of tuber in Q/ha.

	S_1	S_2	S_3	S_4	Mean
M_1	135·9	144·9	150·8	138·1	142·4
M_2	135·9	139·6	141·9	154·6	143·0
M_3	145·6	148·6	165·0	163·5	155·7
M_4	152·3	156·8	173·2	155·3	159·4
Mean	142·4	147·5	157·7	152·9	150·1

C.D. for M marginal means=10·4 Q/ha.
C.D. for S marginal means=10·0 Q/ha.

64(209)

(i) 39·2 Q/ha. (ii) (a) 13·3 Q/ha. (b) 12·4 Q/ha. (iii) Main effect of M alone is highly significant. (iv) Av. yield of tuber in Q/ha.

	S_1	S_2	S_3	S_4	Mean
M_1	23·9	41·8	30·6	27·6	31·0
M_2	36·6	35·1	39·6	32·1	35·8
M_3	37·3	36·6	49·3	34·3	39·4
M_4	53·0	47·8	53·0	47·8	50·4
Mean	37·7	40·3	43·1	35·4	39·2

C.D. for M marginal means=7·7 Q/ha.

Crop :- Potato (*Main*). **Ref :- T.N. 63(13).**

Site :- State Seed Farm, Rifle Range, Kodaikanal. **Type :- 'D'.**

Object :—To find out the comparative efficacy of various chemicals in the control of the cut worm pest of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato-G.M. (b) Potato. (c) 14·8 Q/ha. of Nanjanad mixture. (ii) Dark loamy soil. (iii) 24.10.63. (iv) (a) Digging and ploughing with country plough. (b) By hand. (c) 2224 Kg/ha. (d) 61 cm.×23·0 cm. (e) 1. (v) 14 8 Q/ha. of Nanjanad mixture and Groundnut cake (Qty. N.A.). (vi) Great scot (4 months). (vii) Unirrigated. (viii) Interculture and weeding by *Goty muller*. (ix) 92 cm. (x) 14.2.64.

2. TREATMENTS :

8 insecticidal treatments : I_0=Control, I_1=Lindane 0 05% spraying, I_2=D.D.T. 0·1% spraying, I_3= Parathion 0·025% spraying, I_4=Endrin 0·02% spraying, I_1=Aldrin 5% dusting, I_6=D.D.T. 5% dusting and I_7=Heptachlor 6% dusting.

Chemicals were applied at 28 Kg/ha. of dust in the case of those dusted and at 1123 litres/ha. in the case of those sprayed. Dates of application were 24.10 63, 25.11.63 and 28.12.63.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×3·7 m. (b) 3·1 m.×3·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good growth during the first two months, after wards affected by severe blight. (ii) Pest incidence low till the last application of chemicals. Pests appeared in Jan. and Feb. 64 and caused damage to tubers. (iii) Yield of tubers. (iv) (a) 1963-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 44·7 Q/ha. (ii) 6·7 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
Av. yield	37·7	42·2	41·7	45·6	40·6	46·7	50·4	52·6

Crop :- Potato (*Main*). **Ref :- T.N. 63(14).**

Site :- State Seed Farm, Vilpatty, Kodaikanal. **Type :- 'D'.**

Object :—To find out the comparative efficacy of various chemicals in the control of pests on Potato crop.

1. BASAL CONDITIONS :

(i) (a) Potato-G.M. (b) G.M. (c) 14·8 Q/ha. of Nanjanad mixture. (ii) Loamy. (iii) 4.10.1963. (iv) (a) Digging and ploughing with country plough. (b) By hand. (e) 2224 Kg/ha. (d) 61·0 cm.×22·9 cm. (e) 1. (v) 14·8 Q/ha. of Nanjanad mixture and G.N.C. (quantity N A.). (vi) Great Scot (4 months). (vii) Unirrigated. (viii) Interculture and weeding by using *Goty muller*. (ix) 92 cm. (x) 30.1.64.

2. TREATMENTS :

8 insecticidal treatments : I_0=Control, I_1=Lindane 0·1% (spraying), I_2=D.D.T. 0·1% (spraying), I_3= Parathion 0·025% (spraying), I_4=Endrin 0·02% (spraying), I_5=Aldrin 5% (dusting), I_6=D.D.T. 5% (dusting) and T_7=Heptachlor 6% (dusting).

Chemicals applied on 4.10.63, 7.11.63 and 7.12.63.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 4·3 Sq. m. (b) 3·7 Sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(iv) Good growth during the first two months. Afterwards affected by blight. (ii) Pest incidence low till the last application of chemicals. In later half of Dec. 63 and Jan. 64 the pest appeared and caused damage to tubers. Blight attack was also noted. (iii) Yield of tubers. (iv) (a) 1963-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 57·6 Q/ha. (ii) 11·9 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
Av. yield	46·5	52·1	53·8	62·8	59·1	58·5	61·3	66·4

Crop :- Potato (*Summer*). **Ref :- T.N. 64(88).**

Site :- State Seed farm Rifle Range, Kodaikanal. **Type :- 'D',**

Object :— To find out the efficacy of the various chimcals in the control of the pests in Potato crop.

1. BASAL CONDITIONS :

(i) (a) Potato-G.M, (b) G.M. (c) Nil. (ii) Dark loamy soil. (iii) 16.11.1964. (iv) (a) Manually digging and ploughing with country plough. (b) By Goty muller. (c) N.A. (d) 270 cm. × 60 cm. (e) 1. (v) 17·5 Q/ha. of Nanjanad mixture. (vi) Greak scott. (vii) Unirrigated. (viii) 1 weeding. (ix) 45 cm. (x) 12.3.1965.

2. TREATMENTS :

6 insecticidal treatments : I_0=Control, I_1=Aldrin 5% dust, I_2=Heptachlor 6% dust, I_3=D.D.T. 5% dvst, I_4=Aldrin 20% granules and I_5=Dieldrin 2% granules.

Insecticides applied on 16.11.1964.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (ii) 4. (iv) (a) 4·5 em. × 3·0 m. (b) 3·6 m. × 3·0 m. (v) 45 cm. on one side. (vi) Yes.

4. GENERAL :

(i) Not good. (ii) Cut worm, Cater pillars were seen at the time of harvest. (iii) Affected tubers and tuber yield. (iv) (a) 1964 and 65 (65 N.A.) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 517·3 Q/ha. (ii) S.E.'s N.A. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5
Av. yield	483·3	515·8	570·7	497·8	543·9	492·2

Crop :- Potato (*Main*) **Ref :- T.N. 60(120).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :— To assess the relative efficacy of various fungicides for the control of Brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato follow G.M. (b) Lupin. (c) Not manured. (ii) Laterite soil. (iii) 20.4.1960. (iv) (a) 3 ploughings. (b) Planting the tubers in furrows. (c) 2500 Kg/ha. (d) 23 cm. × 46 cm. (e) 1. (v) 12·5 m. tonnes/ha. F.Y.M.+2180 Kg/ha. Nanjanad mixture. (vi) Great scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 72 cm. (x) 18.8.1960.

2. TREATMENTS :

Please see in expt. no. 60 (121) on page 335.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 21 sq. m. (b) 10·5 sq.m. Exact dimensions are not available. (v) 1·5 m.×1·5 m. (vii) Yes.

4. GENERAL :

(i) Good. (ii) Very meagre infection. (iii) Yield data. (iv) (a) 1960-1964 (modified). (b) Nil. (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 27 8 Q/ha. (ii) 19·2 Q/ha. (iii) The treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	39·3	10·9	12·8	47·6	23·3	38·4	23·0	27·3

Crop :- Potato (*Main*). **Ref :- T.N. 62(126).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :— To study the effect of fungicidal cum antibiotic chemicals for the control of brown rot disease of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Laterite soil. (iii) 2.4.1962. (iv) 3 ploughings and forming ridges and furrows. (b) Dibbling in lines. (c) 90000 tubers/ha. (d) 60 cm.×22 cm. (e) 1. (v) Nanjanad Mixture at 20 Q/ha. (vi) Great scot. (vii) Unirrigated. (viii) Hoeing and weeding. (ix) 111 cm. (x) 10.9.1962.

2. TREATMENTS :

10 treatments : T_0=Control, T_1=Formalin 1 Kg/500 litres, T_2=Wet ceresan 1 Kg/1000 litres, T_3=B. mixture 10 gm./litre+$CuSo_4$ 10 gm./litre, T_4=Aretan 2·5 gm./litre, T_5=Hysol 1·25 gm./litre, T_6=Merculine 2·5 gm./litre, T_7=Phytomycin 1 gm./litre, T_8=Thiram 1 gm./litre and T_9= Neem leaf infusion 65 gm/litre.

Seed tubers are soaked in the respective chemicals for 15 minutes and air dried under shade for about 30 minutes before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of brown rot. (iii) Counts of infested tubers and yield of tuber. (iv) (a) 1962 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 72·1 Q/ha. (ii) 18·2 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	72·8	69·7	71·9	67·5	64·6	77.2	67·5	78·5	79·4	71·9

Crop :- Potato (*Winter*). **Ref :- T.N. 62(154).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study the effect of Reglone as a haulm killer for Potato.

1. BASAL CONDITIONS :

(i) (a) Potato follow G.M. (b) *Lupin.* (c) Nil (ii) Laterite soil. (iii) 6.2.62. (iv) (a) 3 ploughings and breaking of clods. (b) Planting along ridges and furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12·4 m. tonnes/ha. of F.Y.M. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 40 cm. (x) 2.6.62.

2. TREATMENTS :

All combinations of (1) and (2) with a control

(1) 3 levels of Reglone : L_1=1·7 Kg/ha., L_2=2·2 Kg/ha. and L_3=2·8 Kg/ha.

(2) 3 times of application : T_1=90, T_2=100 and T_3=110 days after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 3·4 m.×3·1 m. (b) 3·1 m.×2·6 m. (v) 11 cm.×23 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1962—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 266·2 Q/ha. (ii) 35·8 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tuber in Q/ha.

Control=253·6 Q/ha.

	L_1	L_2	L_3	Mean
T_1	265·1	268·8	257·6	263·8
T_2	237·1	240·8	270·7	249·5
T_3	267·0	281·9	319·3	289·4
Mean	256·4	263·8	282·5	267·6

Crop :- Potato (*Winter*). **Ref :- T.N. 64(184).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study the effect of different chemicals for the control of brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Laterite soil. (iii) 23.1.64. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 2500 Kg/ha. (d) 45 cm.×23 cm. (e) 1. (v) 20 Q/ha. of Nanjanad mixture+120 Q/ha. of F.Y.M. (vi) Great Scot. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 58 cm. (x) 18.5.64.

2. TREATMENTS :

6 treatments : T_0=Control, T_1=Bord. mixture 1%, T_2=Merculine 1·2 c.c./litre, T_3=Thiram 1 c.c/litre, T_4=Lysol 1 c.c/litre and T_5=Formalin 1 c.c/litre.

Seed tubers were soaked in the respective chemicals for 15 minutes and air dried under shade for about ½ an hour before planting. The remaining fungicides were drenched along the planing furrows in the respective plots after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 4·6 m.×4·4 m. (v) one row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible. (iii) Yield of tuber. (iv) (a) 1963-64 (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 118·5 Q/ha. (ii) 21·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	120·5	116·7	113·4	113·7	131·3	115·6

Crop :- Potato (*Winter*). **Ref :- T.N. 64(219).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the efficacy of various chemicals for the control of brown rot.

1. BASAL CONDITIONS :

(i) (a) Potato follow brown rot. (b) *Lupin*. (c) Not manured. (ii) Laterite soil. (iii) 23.1.64. (iv) (a) 3 ploughings. (b) Planting the seed tuber along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12·5 m. tonnes/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 9 cm. (x) 18.5.64.

2. TREATMENTS :

6 chemical treatments : T_0=Control, T_1=Bord. mixture 1%, T_2=Merculine 125 gm/100 litres of water, T_3 =Thiram 100 gm/100 litres of water, T_4=Lysol 100gm/100 litres of water and T_5= Formalin 100 gm/100 litres of water.

The seed tubers are allowed to soak in the chemicals for 15 minutes and shade dried and planted. After sowing the chemicals were drenched in the planted furrows at the rate of 3500 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) 2 rows on either sides. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Very mild infection only. (iii) Yield of tubers in different grades. (iv) (a) 1960—64 (treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 117·2 Q/ha. (ii) 19·4 Q/ha. (iii) Treatment differences are significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	120·3	93·4	108·3	135·2	129·2	116·9

C.D.=23·1 Q/ha.

Crop :- Potato (*Winter*). **Ref :- T.N. 62(159).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the relative efficacy of various chemicals for the control of Brown rot.

1. BASAL CONDITIONS :

(i) (a) Potato follow G.M. (b) *Lupin.* (c) Not manured. (ii) Laterite soil. (iii) 12.2.62. (iv) (a) 3 ploughings. (b) Planting the seed tubers along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12·5 m. tonnes/ha of F.Y.M +2180 Kg/ha. Nanjanad mixture. (vi) Great Scot. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 38 cm. (x) 27, 28.5.62.

2. TREATMENTS : and 3. DESIGN :

Same as in expt. no. 61(119) on page 331 and 332.

4. GENERAL :

(i) Good. (ii) Very meagre infection. (iii) Yield and infection data. (iv) (a) 1960—64 (treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 165·2 Q/ha. (ii) 40·8 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	197·7	158·2	155·6	167·3	191·1	18·8	174·1	183·0	196·3	210·3

C.D.=47·5 Q/ha.

Crop :- Potato (*Winter*). **Ref :- T.N. 63(216).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the relative efficacy of various chemicals for the control of Brown rot.

1. BASAL CONDITIONS :

(i) (a) Potato — G.M. (b) *Lupin.* (c) Not manured. (ii) Laterite soil. (iii) 28.1.1963. (iv) (a) 3 ploughings. (b) Planting the tubers along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) One. (v) 12·5 M. tonnes/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad Mixture. (vi) Great Scot. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 26 cm. (x) 22.5.1963.

2. TREATMENTS :

10 chemical treatments : T_0=Control, T_1=Formalin 100 c.c./50 litres of water, T_2=Wet ceresan 100 gm/100 litres, T_3=Bordeaux Mixture 1%, T_4=Merculine 100 c.c./40 litres, T_5=Streptomycin 100 gm/100 litres, T_6=Agallal 5 gm./2 litres (or 250 gm./100 litres), T_7=Nickel chloride 100 gm /10 litres, T_8=Lonacol 100 gm./40 litres and T_9=Neem seed infusion 3·6 Kg/55 litres.

The seed tubers were soaked in the respective chemicals for 15 minutes and shade dried and planted. After sowing the chemicals were drenched in the planted furrows at 3500 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m×3·3 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Percentage of tube infection and yield of tubers. (iv) (a) 1960-64 (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield data

(i) 251·3 Q/ha. (ii) 33·7 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	250·9	262·0	278·2	265·3	133·9	265·7	256·8	274·5	259·7	266·4

C.D.=39 2 Q/ha.

Infection data

(i) 21·0. (ii) 6·3. (iii) Treatment differences are not significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean infection	20·7	21·4	22·8	20·0	16·7	20·0	20·0	24·1	21·4	22·8

Crop :- Potato (*Autumn*). **Ref :- T.N. 63(196), 64(196).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study the effect of various plant harmones spraying on Potato crop in delaying the sprouting of tubers.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin.* (c) Nil. (ii) Lateritic soil. (iii) 24.8.1963 ; 27.9.1964. (iv) (a) 3 ploughings and breaking of clods. (b) Planting of seeds along furrows. (c) 25 Q/ha. (d) 46 cm.×23 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 63 cm. ; 50 cm. (x) 20.12.1963 ; 24.1.1965.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 times of spraying harmones : T_1=75 and T_2=90 days after planting.

(2) 6 plant harmones : C_1=10 p.p.m. of 2—4—D, C_2=7000 p.p.m. of M.E.N.A., C_3=150 p.p.m. of I.A A., C_4=150 p.p.m. of N.A.A., C_5=200 p.p.m. of 2—4—5—T and C_6=2500 p p.m. of maleic hydrozide.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 20 sq. m. (b) 10 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tuber yield. (iv) (a) 1962—1964 (modified in 1963). (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A.(b) Nil. (vi)Nil. (vii) Error variances are heterogeneous, and Treatments×years interaction is absent.

63(196)

(i) 91·1 Q/ha. (ii) 10·9 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tubers in Q/ha.

Control=83·7

	C_1	C_2	C_3	C_4	C_5	C_6	Mean
T_1	91·1	97·1	95·6	94·1	97·1	83·7	93·1
T_2	89·6	89·6	95·6	94·1	88·1	85·2	90·4
Mean	90·4	93·4	95·6	94·1	92·6	84·4	91·8

64(196)

(i) 79·2 Q/ha. (ii) 17·1 Q/ha. (iii) None of the effects is significant . (iv) Av. yield of tubers in Q/ha.

Control=89·7

	C_1	C_2	C_3	C_4	C_5	C_6	Mean
T_1	77·7	80·7	77·7	68·7	82·2	70·2	76·2
T_2	79·2	79·2	73·2	89·7	73·2	86·7	80·2
Mean	78·4	79·9	75·4	79·2	77·7	78·4	78·2

Crop :- Potato (*Autumn*). **Ref :- T.N. 61(102), 62(143), 63(198).**

Site : Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To ascertain the effect of leaf roll and mosaic virus on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) G.M.—Potato for 63(198) ; Buck wheat—Potato for others. (b) Buck wheat. (c) Nil. (ii) Laterite soil. (iii) 7.9.1961 ; 11.9.1962 ; 24.8.1963. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 2500 Kg/ha. (d) 46 cm.×23 cm. (e) 1. (v) 125 Q/ha of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) 1 hoeing, 1 weeding and 1 earthing up. (ix) 42 cm., 45 cm., 63 cm. (x) 27.12.1961 ; 11.12.1962.

2. TREATMENTS :

3 types of tubers : T_1=Healthy tubers, T_2=Leaf roll affected tubers and T_3=Mosaic affected tubers.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 10 sq. m. for 61(102), 62(143), 5·5 m.×1·8 m. for 63(198). (b) 8 sq. m. for 61(102), 62(143), 5·0 m.×1·6 m. for 63(198). (v) 45 cm.×45 cm. for 61(102), 2 rows on both sides for 62(143) ; 23 cm.×12 cm. for 63(198). (vi) Yes

4. GENERAL :

(i) Good. (ii) Mild infection of late blight for 62(143) for which Dithane was sprayed once. No incidence for others. (iii) Tuber yield. (iv) (a) 1960—1963. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 56·8 Q/ha. (ii) 19·3 Q/ha. (based on 4 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	78·5	40·9	51·1

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1961	108·3	50·0	44·3	**	67·5	16·3
1962	26·5	21·1	25·1	N.S.	24·2	7·3
1963	100·8	51·8	84·0	**	78·9	11·7
Pooled	78·5	40·9	51·1	N.S.	56·8	19·3

Crop :- Potato (*Autumn*). **Ref :- T.N. 61(119).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the relative efficacy of various chemicals for the control of Brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato — G.M. (b) Buck wheat. (c) Not manured. (ii) Laterite soil. (iii) 20.9.1961. (iv) (a) 3 ploughings. (b) Planting the seed tubers along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12·5 M. tonnes/ha. F.Y.M.+2180 Kg/ha. Nanjanad Mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 37 cm. (x) 17.1.1962.

2. TREATMENTS :

10 chemical treatments : T_0=Control, T_1=Formalin 100 c.c. in 50 litres, T_2=Wet ceresan 100 gm. in 100 litres, T_3=Bord. Mixture 1%, T_4=Aretan 100 gm. in 40 litres, T_5=Lysol 5% 50 c c. in 40 litres, T_6=Merenline 100 c.c. in 40 litres, T_7=Phytomycin 100 gm. in 100 litres, T_8=Thiram 100 gm. in 100 litres and T_9=Neem leaf infusion 3·6 Kg/55 litres.

The seed tubers to be treated were soaked in the respective chemicals for 15 minutes before planting and shade dried and sown and the chemicals were drenched in the planted furrows at the rate of 3500 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 21 sq. m. (v) 2 m.×2 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Very meagre infection. (iii) Yield of tubers. (iv) (a) 1960—1964 (treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31·3 Q/ha. (ii) 5·2 Q/ha. (iii) Treatment differences are highly significant. (iv) Mean yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	35·2	34·0	23·3	35·2	33·7	30·3	31·8	25·9	30·0	33·3

C.D.=6·7 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 62(127).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :— To study the effect of fungicidal-cum-antibiotic chemicals for the control of brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) N.A. (ii) Lateritic soil. (iii) 10.9.1962. (iv) (a) 3 ploughings and forming ridges and furrows. (b) Dibblings in lines. (c) 80000 tubers/ha. (d) 60 cm.×23 cm. (e) 1. (v) 20 Q/ha. of Nanjanad mixture. (vi) Great scot. (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) 39 cm. (x) 10.12.1962.

2. TREATMENTS :

10 treatments : T_0=Control, T_1=Formalin 2 cc/litre, T_2=Wet cereson 1 gm./litre, T_3=Bord. Mixture 1% +Cu.Sul. 10 gm./litre, T_4=Aretan 2·5 gm./litre, T_5=Lysol 50 cc/litre, T_6=Merculine 2·5 cc/litre, T_7=Phytomycin 1 gm./litre, T_8=Thiram 1 gm./litre and T_9=Neem leaf infusion 65 gm./litre.

Seed tubers were soaked the respective chemicals for 15 mintues and air dried under shade for about ½ an hour before planting.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 62 (126) on page 326.

5. RESULTS :

(i) 23·9 Q/ha. (ii) 3·0 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	24·5	23·7	21·5	25·2	25·9	22·2	21·5	25·9	23·7	25·2

Crop :- Potato (*Autumn*). **Ref :- T.N. 62(161).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :— To asses the efficacy of various chemicals for the control of Brown rot.

1. BASAL CONDITIONS :

(i) (a) Potato — G.M. (b) Buck wheat. (c) Not manured. (ii) Laterite soil. (iii) 10.9.1962. (iv) (a) 3 ploughings with iron plough. (b) Planting the tuber along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) One. (v) 12·5 M. tonnes/ha. F.Y.M.+2180 Kg/ha. Nanjanad Mixture. (vi) Great scot. (vi) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 45 cm. (x) 19.12.1962.

2. TREATMENTS :

10 chemical treatments : T_0=Control, T_1=Formalin 100 cc in 50 litres of water, T_2=Wet cereson 100 gm./100/litres of water, T_3=Bord. mixture 1% T_4=Aretan 100 gm /40 litres of water, T_5=Lysol 50 cc in 2 litres of water, T_6=Merculine 100 cc./40 litres of water, T_7=Phytomycin 100 gm./100 litres of water, T_8=Thiram 100 gm /100 litres of water and T_9=Neem leaf infusion 3·6 Kg/55 litres of water.

The seed tubers were steeped in the respective chemicals for about 15 minutes and then shade dried and planted. After sowing, the chemical solutions were drenched in the planted furrows at the rate of 3500 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection percentage and yield of tubers. (iv) (a) 1960-64 (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield data

(i) 54·3 Q/ha. (ii) 8·0 Q/ha. (iii) The treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	51·7	54·7	53·5	55·4	57·9	52·2	50·8	59·1	51·1	56·3

Infection data

(i) 15·88. (ii) 2·87. (iii) The treatment differences are significant. (iv) Mean percentage of infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean infection	17·6	12·9	17·6	16·8	18·4	12·9	14·0	15·9	17·6	15·0

C.D.=3·34

Crop :- Potato (*Autumn*). **Ref :- T.N. 63(179).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :— To study the effect of different chemicals for the control of Brown rot disease of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Laterite soil. (iii) 29.8.1963. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 2500 Kg/ha. (d) 45 cm.×23 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+20 Q/ha. of Nanjanad mixture. (vi) Great scot. (vii) Irrigated (viii) Hoeing, weeding and earthing. (ix) 58 cm. (x) 15.12.1963.

2. TREATMENTS :

6 treatments : T_0=Control, T_1=Formalin 2 c.c./litre, T_2=Bord. Mixture 1%, T_3=Lysol 1 c.c./litre, T_4=Merculine 2·5 c.c./litre and T_5=Thiram 1 gm./litre.

Seed tubers were soaked in the respective chemicals for 15 minutes and air dried under shade for about ½ an hour before planting. The remaining fungicides were drenched along the planting furrows in the respective plots after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20·2 sq. m. (v) One row on eithers side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination counts, disease incidents and yield of tubers. (iv) (a) 1963-1964 (Treatments modified) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 44·7 Q/ha. (ii) 3·3 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	35·2	49·1	47·2	50·7	41·9	44·2

C.D.=3·9 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 63(217).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the relative efficacy of various chemicals for the control of Brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato — G.M. (b) Buck-wheat. (c) Not manured. (ii) Laterite soil. (iii) 29.8.63. (iv) (a) 3 ploughings. (b) Planting the seed tubers along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm: (e) 1. (v) 12·5 m. tonnes/ha. of F.Y.M.+2180 Kg/ha. of Nanja. mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 59 cm. (x) 15.12.63.

2. TREATMENTS :

6 chemical treatments : T_0=Control, T_1=Formalin 100 c.c/100 litres, T_2=Lysol 100 c.c/100 litres, T_3= Bord. mixture 1%, T_4=Merculine 100 c.c/80 litres and T_5=Thiram ·1 Kg/100 litres.

The seed tubers were soaked in the respective chemicals for 15 minutes and shade dried and planted. After sowing the chemicals were drenched in the planted furrows at 3500 liters/ha.

3. DESIGN :

(i) R,B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1960—64 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 42·8 Q/ha. (ii) 4·1 Q/ha. (iii) The treatment differences are significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	30·8	48·4	49·5	45·5	40·8	42·0

C.D.=4·8 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 60(121).**

Site :- Agri. Res. Stn:, Nanjanad: **Type :- 'D'.**

Object :—To assess the relative efficacy of various fungicides for the control of Brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) Buck-wheat. (c) Nil. (ii) Laterite soil. (iii) 14.9.60. (iv) (a) 3 ploughings. (b) Planting the tubers in furrows, (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1, (v) F.Y.M. 12·5 m. tonnes/ha. +Nanj. mixture 2180 Kg/ha. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 47 cm. (x) 28.1.61.

2. TREATMENTS :

8 chemical treatments : T_0=Control, T_1=Murcuric Chloride 100 c.c/50 litres of water, T_2=Wet Ceresan ·1 Kg/100 litres of water, T_3=Formalin 100 c.c. in 50 litres of water, T_4=Bord. mixture 1%, T_5=Cerenox 0·6 gm/100 gm. of seed, T_6=Phytomycin 1000 ppm. and T_7= Merculine 100 c.c. in 40 litres.

The seed tubers were immersed in the chemicals for 15 minutes before planting and shade dried and planted. After sowing the chemicals were drenched in the planted furrows at the rate of 3500 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 21 sq. m. (b) 10·5 sq. m, (v) 1·5 m.×1·5 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Very negligible infection, (iii) Yield of tubers. (iv) (a) 1960—64 (modified every year). (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 78·8 Q/ha, (ii) 9·9 Q/ha. (iii) Treatment differences are highly significant. (iv) Mean yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	95·2	48·2	95·2	89·6	53·8	79·5	90·7	78·4

C.D.=14·6 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 62(141).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study the effect of various plant harmones spray on the Potato crop in delaying the sprouting of tubers.

1. BASAL CONDITIONS :

(i) (a) Potato—*Lupin*. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 11.9.62/Nil. (iv) (a) 3 ploughings and breaking of the clods. (b) Planting the seeds along furrows. (c) 25 Q/ha. (d) 46 cm.×23 cm. (e) 1. (v) 12·5 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) 22.12.62.

2. TREATMENTS :

All combinations of (1) and (2)+Control

(1) 2 time of application of spray harmones : T_1=75 and T_2=90 days after planting.

(2) 5 plant harmones : C_1=10 ppm. of 2—4—D, C_2=150 ppm. of I.A.A., C_3=150 ppm. of N.A.A., C_4 =200 ppm. of 2—4—5—T and C_5=2500 ppm. of maleic hydrozide.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 3. (iv) (a) 20 sq. m. (b) 10 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild infection of late blight, Dithane was sprayed once. (iii) Germination counts, height measurement, yield of tubers and length of sprouts. (iv) (a) 1962—64 (Treatments modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 61·9 Q/ha. (ii) 7·7 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tubers in Q/ha.

Control=58·0 Q/ha.

	C_1	C_2	C_3	C_4	C_5	Mean
T_1	51·2	58·3	63·9	66·5	61·7	60·3
T_2	63·9	61·3	60·5	71·7	63·5	64·2
Mean	57·6	59·8	62·2	69·1	62·6	62·3

Crop :- Potato (*Summer*). **Ref :- T.N. 60(13), 61(130), 62(142), 63(197), 64(198).**

Site :- Agri. Res. Stn., Nanjanad. Type :- 'D'.

Object :—To ascertain the effect of leaf roll and mosaic virus on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato for 60(13), 61(130); G.M.—Potato for others. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 14.3.60; 20.3.61; 13.3.62; 9.3.63; 6.3.64. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 2500 Kg/ha. (d) 61 cm. × 23 cm. for 60(13); 46 cm. × 23 cm. for others. (e) 1. (v) 2180 Kg/ha. of Nanjanad mixture for 60(13); 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture for others. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 99 cm.; 139 cm.; 129 cm.; 93 cm.; 148 cm. (x) 3.10.60; 1.9.61; 7.9.62; 30.8.63; 22.9.64.

2. TREATMENTS :

3 types of tubers : T_1=Healthy tubers, T_2=Leaf-roll affected tubers and T_3=Mosaic affected tubers.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8 (iv) (a) 5·5 m. × 1·8 m, for 64(198); 10 sq. m. for others. (b) 5·0 m. × 1·6 m. for 64(198); 8 sq. m for others. (v) 23 m. × 12 cm. for 64(198); 45 cm. × 45 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield of tubers. (iv) (a) 1960—64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) (b) N.A. (vi) Nil. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

(i) 87·8 Q/ha. (ii) 23·6 Q/ha. (based on 78 d.f. made up of pooled error and Treatments × years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	109·7	70·0	83·6

C.D.=10·6 Q/ha.

Av. yield of tuber in Q/ha.

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1960	182·1	137·3	158·3	**	159·2	23·8
1961	31·9	17·6	24·7	N.S.	24·7	18·1
1962	153·4	103·6	109·8	**	122·3	29·2
1963	121·8	58·8	85·4	**	88·7	21·3
1964	59·5	32·9	39·9	*	44·1	20·1
Pooled	109·7	70·0	83·6	**	87·8	23·6

Crop :- Potato (*Summer*). **Ref :- T.N. 63(194), 64(195).**

Site:- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To sudy the effect of various plant harmones spraying on Potato in delaying the sprouting of tubers.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 11.3.1963 ; 6.3.1964. (iv) (a) 3 ploughings and breaking of clods. (b) Planting the seeds along furrows. (c) 25 Q/ha. (d) 45 cm. × 23 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 91 cm., 148 cm. (x) 31.8.1963 ; 22.9.1964.

2. TREATMENTS :

All combinations of (1) and (2) +a control,

(1) 2 times of spraying harmones : $T_1=75$ and $T_2=90$ days after planting.

(2) 6 plant harmones : $C_1=10$ p.p.m. of 2–4–D, $C_2=7000$ p.p.m. of M.E.N.A., $C_3=150$ p.p.m. of I.A.A., $C_4=150$ p.p.m. of N.A.A., $C_5=200$ p.p.m. of 2–4–5—T and $C_6=2500$ p.p.m. of maleic hydrozide.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) (a) 20 sq. m. (b) 10 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tuber yield. (iv) (a) 1962–1964 (modified in 1963). (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments × years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

63(194)

(i) 140·6 Q/ha. (ii) 19·6 Q/ha. (iii) Main effect of C alone is significant. (iv) Av. yield of tubers in Q/ha.

Control = 158·4

	C_1	C_2	C_3	C_4	C_5	C_6	Mean
T_1	122·5	147·9	152·4	128·5	146·4	122·5	136·7
T_2	150·9	153·9	162·8	113·5	146·4	118·0	140·9
Mean	136·7	150·9	157·6	121·0	146·4	120·3	138·8

C.D. for C marginal means = 23·4 Q/ha.

64(195)

(i) 102·0 Q/ha. (ii) 49·6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of tubers in Q/ha.

Control=94·1

	C_1	C_2	C_3	C_4	C_5	C_6	Mean
T_1	115·0	94·1	98·6	127·0	65·7	74·7	95·9
T_2	91·1	137·4	146·4	100·1	76·2	107·6	109·8
Mean	103·1	115·8	122·5	113·5	71·0	91·1	102·8

Crop :- Potato (*Summer*). **Ref :- T.N. 60(110), 61(101), 62(140), 63(195).**

Site :- Agri. Res. Stn., Nanjanad. Type :- 'D'.

Object :—To study the effect of maleic hydrozide spray on the Potato crop in delaying the sprouting of tubers.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 18.3.1960 ; 25.4.1961 ; 3.4.1962 ; 22.3.1963. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 2500 Kg/ha. (d) 46 cm.× 23 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 61 cm., 132 cm., 140 cm., 53 cm. (x) 22.7.1960 ; 2.9.1961 ; 26.9.1962 ; 21.6.1963.

2. TREATMENTS:

4 times of spraying : T_0=Control (no spraying), T_1=45, T_2=60 and T_3=75 days after planting. Maleic hydrozide was applied at 2500 p.p.m. at 1125 litres/ha. by spraying once.

3, DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 20 sq. m. (b) 10 sq. m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild infection with late blight. Dithane was sprayed once. (iii) Yield of tuber. (iv) (a) 1960—1963. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1055 Q/ha. (ii) 61·1 Q/ha. (based on 9 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	122·0	109·4	92·4	98·1

Av. yield of tubers in Q/ha.

Years	T_0	T_1	T_2	T_3	Sig.	G M.	S.E./plot
1960	138·9	122·5	122·9	137·8	N.S.	130·5	13·7
1961	130·1	118·8	124·5	131·6	N.S.	126·3	13·8
1962	100·8	89·6	92·6	97·1	N.S.	95·0	10·4
1963	118·1	106·6	29·8	25·8	N.S.	70·1	20·5
Pooled	122·0	109·4	92·5	98·1	N.S.	105·5	61·1

Crop :- Potato (*Summer*). **Ref :- T.N. 62(160).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To assess the relative efficacy of various chemicals for the control of Brown rot.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) *Lupin.* (c) Not manured. (ii) Laterite soil. (iii) 2.4 1962. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2500 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 125 m. tonnes/ha. of F.Y.M.+2180 Kg/da. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 114 cm. (x) 10.9.1962.

2. TREATMENTS :

Same as 1961 *Autumn* Winter 61(119) on page 332.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatment. (iii) Yield and infection of tubers. (iv) (a) 1960—54 (but with varying treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield data

(i) 791 Q/ha. (ii) 20·0 Q/ha. (ii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha. yield data.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	79·1	76·1	78·4	73·9	68·7	83·5	73·6	85·0	86·5	79·1

Infestation data

(i) 23·1. (ii) 9·2. (iii) Treatment differences are not significant. (iv) Mean infection in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean infection	25·7	22·1	24 4	25 1	21·6	26·6	17·2	25·1	18·0	25·5

Crop :- Potato (*Summer*). **Ref :- T.N. 61(89).**

Site :- Reg. Res. Stn., Nanjanad. **Type .- 'D'.**

Object :—To study the efficacy of fungicides and chemicals in the control of Brown rots of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lupin.* (c) Nil. (ii) Laterite soil. (iii) Feb., 1961. (iv) (a) 3 ploughings, forming ridges and furrows. (b) Dibbling in lines, (c) 80000 tubers/ha. (d) 60 cm.×22 cm. (e) 1. (v) 200 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 41 cm. (x) Last week of May, 1961.

2. TREATMENTS :

10 fungicides: T_0=Control, T_1=Acidulated Mercuric chloride, T_2=Formalin 1 in 500, T_3=Wet ceresan 1 Kg/1000 litres, T_4=Bordeaux mixture 1%, T_5=Phytomycin 1 Kg/1000 litres, T_6=Merculine 125 gm. in 50 litres, T_7=Merculine ½ Kg. in 50 litres, T_8=Aretan 1 Kg/400 litres and T_9= Hexasen 1% (1 Kg/100 litres).

Seed tubers were soaked in the respective chemicals for 15 minutes and air dried under shade for about ½ an hour before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×6·1 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infestation count and yield of tuber. (iv) (a) 1961—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 47·1 Q/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	43·6	40·2	43·6	66·3	49·5	42·3	47·3	35·1	57·0	45·8

Crop :- Potato (*Summer*). **Ref :- T.N. 62(125).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study the effect of fungicidal cum antibiotic chemicals against Brown rot disease of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Laterite soil. (iii) 12.2.62. (iv) (a) 3 ploughings, forming ridges and furrows. (b) Dibbling in lines. (c) 80000 tubers/ha. (d) 60 cm.×22 cm. (e) 1. (v) Nanjanad mixture at 20 Q/ha. (vi) Great Scot. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 41 cm. (x) Last week of May, 1962.

2. TREATMENTS:

10 treatments : T_0=Control, T_1=Formalin 1 in 500, T_2=Wet Ceresan 1 Kg. in 1000 litres, T_3=Bord. mixture 1%, T_4=Aretan 2·5 Kg/1000 litres, T_5=Lysol 5%, T_6=Merculine 1 Kg/400 litres, T_7=Phytomycin 1 Kg/1000 litres, T_8=Neem seed infusion 4 Kg/60 litres and T_9=Thiram 1 Kg/1000 litres.

The seed tubers soaked in the respective chemicals for 15 minutes and air dried under shade for about ½ an hour before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 6·7 m.×3·4 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of brown rot. (iii) Counts of infested and good tuber and yield of tubers. (iv) to (vii) Nil.

5. RESULTS :

(i) 158·1 Q/ha. (ii) 22·7 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_3	T_8	T_9
Av. yield	185·2	169·9	165·8	175·9	171·5	20·6	159·4	163·4	181·2	187·6

C.D.=29·0 Q/ha.

Crop :- Potato (*Summer*). **Ref :- T.N. 63(178).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To study tha effect of fungicidal-cum-antibiotic chemicals for the control of Brown rot of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Laterite soil. (iii) 28.1.63. (iv) (a) 3 ploughings and forming ridges and furrows. (b) Dibbling in lines. (c) 80000 tubers/ha. (d) 60 cm.×22 cm. (e) 1. (v) 20 Q/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 28 cm. (x) 25.5.63.

2. TREATMENTS :

10 treatments : T_0=Control. T_1=Formalin 2 c.c/litre, T_2=Wet Ceresan 1gm/litre, T_3=Bord. mixture 1%,, T_4=Merculin 2·5/litre, T_5=Strep tonycin 1gm/litre, T_6=Agrallal 2·5 gm/litre, T_7=Nickel Chloride 10 gm/litre, T_8=Lonacol 2·5 gm/litre and T_9=Neem leaf infusion 65 gm/litre.

Seed tubers were soaked in the respective chemicals for 15 minutes and air dried under shade for about ½ an hour before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 6·7 m.×3·3 m. (v) one row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Periodical observations on the incidence of wilt tuber infection etc. and yield. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) This expt. was conducted by Govt. Mycologist, Coimbatore.

5. RESULTS :

(i) 229·1 Q/ha. (ii) 51·9 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	228·3	238·0	253·5	241·7	122·3	242·4	234·3	249·8	237·2	243·1

C.D.=60·4 Q/ha.

Crop :- Potato (*Summer.*) **Ref :- T.N. 64(210).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To evaluate the efficacy of certain fungicides for the control of Late blight.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 7.4.64. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2400 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 12 m. tonnes/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 140 cm. (x) 2.9.64.

2. TREATMENTS :

6 fungicidal treatments : T_0=Control, T_1=Dithane 2·8 at 2·3 Kg/1122 litres/ha., T_2=Dithane M. 22 at 1·7 Kg/1120 litres/ha., T_3=Duter 1·1 Kg/450 litres/ha.. T_4=Bord. mixture 1% 1120 litres/ha. and T_5=B.M. 1%+$ZnSO_4$ 0·1% 1120 litres/ha.

Two spraying were given at fortnightly intervals in June.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 5·5 m.×3·7 m. (b) 3·7 m.×2·7 m. (v) 92 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield of tubers. (iv) (a) 1964 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 100.2 Q/ha. (ii) 10·0 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	78·4	98·6	112·7	123·2	105·3	82·9

C.D.=11·9 Q/ha.

Crop :- Potato (*Summer*). **Ref :- T.N. 63(224).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To evaluate the efficacy of certain fungicides for the control of Late blight.

1. BASAL CONDITIONS :

(i) (a) Potato—G.M, (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 22.3.63. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2400 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+ 2180 Kg/ha. Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 65 cm. (x) 24.7.63.

2. TREATMTNTS :

6 weedicidal treatments : T_0=Control, T_1=Duter 1 in 40 at 1Kg/400 litres of water, T_2=Blimix 1Kg/400 litres of water, T_3=Dithane M. 22 at 1½ Kg/100 litres of water, T_4=Flit 406 at 1Kg/500 litres of water and T_5=Copper oxide 1 Kg/600 litres of water.

The spray formulations were applied 4 times at 15 days intervals at 1120 litres of spraying fluid/ha. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 5·5 m.×3·7 m. (b) 3·7 m.×2·7 m. (v) 92 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield in tubers. (iv) (a) 1963 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 192·0 Q/ha. (ii) 25·0 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	191·1	204·4	179·2	180·7	188·9	171·7

C.D.=29·8 Q/ha.

Crop :- Potato (*Summer*). **Ref :- T.N. 62(169).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'D'.**

Object :—To evaluate the efficacy of certain fungicides for the control of Late blight.

1. BASAL CONDITIONS :

(i) (a) Potato—green manure. (b) Lupin. (c) Nil. (ii) Laterite soil. (iii) 19.3.62. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (e) 2400 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad Mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing and weeding. (ix) 121 cm. (x) 23.8.62.

2. TREATMENTS :

12 fungicidal treatments : T_0=Control, T_1=Sulphur dust 28 Kg/ha., T_2=Bord. Mixture 1% 1120 litres/ha. T_3=Dithane Z-78 at 3·4 Kg/ha. Sp., T_4=Ferham 1·9 Kg/ha. Sp., T_5=Microcop 3·4 Kg/ha. Sp., T_6=Dithane M-22 at 3·4 Kg/ha. Sp., T_7=Hexacop 4% dust 28 Kg/ha., T_8=Hexacop 6% dust 28 Kg/ha., T_9=Hexacop 12% dust 28 Kg/ha., T_{10}=Nickel chloride 2·3 Kg/ha. and T_{11}=Lonacol 1 in 40 at 6·5 Kg/ha.

The chemicals were applied 4 times at 15 days interval starting from 45 days after sowing. The spraying were given @ 1120 litres of syraying fluid/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 5·5 m.×3·7 m. (b) 3·7 m.×2·7 m. (v) 92 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of tubers. (iv) (a) 1962-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 133·3 Q/ha. (ii) 28·1 Q/ha. (iii) Treatment differences are significant. (iv) Av. yield of tubers in Q/ha,

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	128·4	126·9	119·5	135·9	125·4	113·5
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	156·8	122·5	152·3	168·7	126·9	122·5

C.D.=32·5 Q/ha.

Crop :- Potato (*Autumn*). **Ref :- T.N. 63(225).**

Site :- Agri. Res. Stn., Nanjanad. **Type :-'D'.**

Object :—To evaluate the efficacy of certain fungicides for the control of Late blight.

1. BASAL CONDITIONS :

(i) (a) Potato—*Lupin*. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 7.9.63. (iv) (a) 3 ploughings. (b) Planting the seeds along furrows. (c) 2400 Kg/ha. (d) 23 cm.×46 cm. (e) 1. (v) 120 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad Mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing and weeding. (ix) 60 cm. (x) 29.12.63.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Dithane 2·78 at 2 Kg/1000 litres of water, T_2=Dithane M-22 1·5 Kg/1000 litres of water, T_3=Dithane M-45 at 1·5 Kg/1000 litres of water, T_4=Dithane D-14 at 5 litres+1·5 Kg. Zn SO_4+·5 Kg. lime in 1000 litres of water, T_5=Duter 1 Kg/400 litres of water, T_6=Lonocol 1 Kg/400 litre of water T_7=Bristane 60, 75 gm./90 litres of water T_8=Bord. Mixture 1% and T_9=Bord. Mixture 1%+$ZnSO_4$ 0·1%.

The chemicals were sprayed 5 times at 10 days interval @ 1120 litres of spraying fluid/ha. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 5·5 m.×3·7 m. (b) 3·7 m.×2·7 m. (v) 92 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatment. (iii) Yield of tubers. (iv) (a) 1963-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 166·5 Q/ha. (ii) 11·9 Q/ha. (iii) Treatment differences are significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	156·6	162·8	168·4	160·2	164·8	173·6	172·9	179·4	155·9	170·2

C.D.=13·8 Q/ha.

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 61(48).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticides to control Jassids on Bhindi

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 14.8.61. (iv) (a) 2 ploughings. (b) Hand sowing. (c) 6 Kg/ha. (d) 60 cm.×45 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H. 483 (pusa savani). (vii) Irrigated. (viii) 3 weedings. (ix) 27 cm. (x) Nov.-Dec. 1961.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1=Parathion 0·025%. I_2=Endrin 0·02%, I_3=D.D.T. 0·1% and I_4=Thiomoton 0·1%.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 9·8 m.×2·7 m. (b) 8·5 m.×1·8 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Very good. (ii) Incidence of Jassids was very meagre. (iii) Counts of jassids and yield of *bhindi*. (iv) (a) 1960-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 99 0 Q/ha. (ii) 16·3 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *bhindi* in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	85·4	107·0	102·5	91·3	109·0

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 62(71).**

Site :- Agri. College and Res. Instt. Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticides to control Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 8.8.62. (iv) (a) 2 ploughings. (b) Hand sowing. (c) 6 Kg/ha. (d) 60 cm.×45 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H. 483 (pusa savani), (vii) Irrigated. (viii) 2 weedings. (ix) 40 cm. (x) Nov.-Dec. 62.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1=Dipterex 0·1%, I_2=Metasystox 0·1%, I_3=Pestox 0·1% and I_4=Ekatin 0·1%.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 61(48) as above.

5. RESULTS :

(i) 70·0 Q/ha. (ii) 10·0 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *bhindi* in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	58·3	79·1	75·6	67·8	69·2

Incidence of fruit borer

(i) 16·8 degrees. (ii) 2·8 degrees. (iii) Treatment differences are not significant. (iv) Av. percentage of fruit borer infestation in degrees.

Treatment	I_0	I_1	I_2	I_3	I_4
Mean incidence	18·2	16·0	15·8	17·3	16·7

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 63(93).**

Site :- Agri. College and Res. Instt., Coimbatore. Type :- 'D'.

Object —To study the effect of insecticides to control of Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 23.7.63. (iv) (a) 2 ploughings.. (b) Hand sowing. (c) 6 Kg/ha. (d) 60 cm.×45 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H. 483. (vii) Irrigated. (viii) 2 weedings. (ix) 16 cm. (x) Nov. 1963.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1=Sevin 0·1%, I_2=Dipterex 0·1%, I_3=Endrin 0·02 and I_4= Metasystox 0·1%.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 61(48) on page 344.

5. RESULTS :

Yield

(i) 31·8 Q/ha. (ii) 6·9 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *bhindi* in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	31·0	30·5	35·8	28·9	32·8

Incidence of fruit borer

(i) 11·8°. (ii) 1·7 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage of incidence in degrees.

Treatment	I_0	I_1	I_2	I_3	I_4
Mean incidence	17·6	8·6	9·4	11·5	11·8

C.D.=2·7 degrees.

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 64(202).**

Site :- Central Farm A.C. & R.I., Coimbatore. Type :- 'D'.

Object :— To evolve a suitable control measure against Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) 30 tonnes/ha. F.Y.M.+112 Kg/ha. A/S+225 Kg/ha. Super. (ii) Red loam. (iii) 2.9.1964. (v) (a) 2 ploughings. (b) Hand sowings. (c) 6 Kg/ha. (d) 60 cm.×45 cm. (e) One. (v) 30 tonnes/ha. F.Y.M.+112 Kg/ha. A/S+225 Kg/ha. Super. (vi) H. 483 (Pusa Savani). (vii) Irrigated. (viii) 2 weedings. (ix) 35 cm. (x) During November and December 64-(upto 14.12.64.)

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Feritrothion (Folithions) 0·05%, T_2=Carbophenothion (Trithion) 0·02%, T_3=Triclorphon (Dipterex) 0·1%, T_4=Dimethoate (Rogor) 0·1%.

The insecticides were sprayed twice on 13.10.64 and 31.10.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 9·8 m.×2·7 m. (b) 8·5 m.×1·8 m. (v) 60 cm.×45 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatment. (iii) Number and weight of infested fruits and good fruits. (iv) (a) 1960-1964 (modified). (b) No. (c) Nil. (v) and (vi) Nil.

5. RESULTS :

Yield of fruits by weight.

(i) 31·4 Q/ha. (ii) 7·6 Q/ha. (iii) The treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	21·2	33·6	30·5	34·6	37·0

Yield of fruits by number.

(i) 234820./ha. (ii) 39562/ha. (iii) The treatment differences are highly significant. (iv) Av. yield of fruits in numbers/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. no./ha.	152,990	256,800	243,660	244,470	276,180

C.D.=59343

Percentage of infestations by numbers of fruits.

(i) 35·4. (ii) 3·1. (iii) The treatment differences are significant. (iv) Av. Percentage of infestation.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. percentage	35·9	35·2	40·5	34·4	31·2

C.D.=4·56 degrees.

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 60(18).**

Site :- Agri. College and Res. Instt. Coimbatore. **Type :- 'D'.**

Object :— To study the insecticidal control of the Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) N.A. (ii) Red loam. (iii) 28.9. 1960. (iv) (a) One ploughing. (b) Hand sowing. (c) 5·6 Kg/ha. (d) 61 cm.×45 cm. (e) 1. (v) 112 Kg/ha. of A/S and 224 Kg/ha. of Super+112 Kg/ha.+377 Q/ha. of F.Y.M. (vi) H-409. (vii) Irrigated. (viii) 1 weeding. (ix) 39 cm. (x) 19, 28.11.60 ; 5, 10,12.60.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1= Endrin (Endrex) 0·02%, T_2=Parathion (Folidol) 0·025%, I_3=D.D.T. 0·1% and I_4=Dieldrin 0·1%.

Sprayed on 25.10.60, 5.11.60 and 22.11.60.

3. DESIGN :

(i) R.B D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 9·8 m.×2·7 m. (b) 8·5 m.×1·8 m. (v) 40 plants were left as guard rows alround the experimental plot of 56 plants. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of jassids. (iii) 8 plants were selected at random from each plot. one from each of the 8 rows and the jassid populations (both nymphs and adults) on three leaves (3rd, 4th and 5th from the top) per plant were recorded. (iv) (a) 1960-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Weight of fruits

(i) 339 Kg/ha. (ii) 100·9 Kg/ha. (iii) Treatment differences are significant (iv) Av. yield of Bhindi in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	259	454	318	409	254

C.D.=151·2 Kg/ha.

Number of fruits

(i) 16972 fruits/ha. (ii) 3336 fruits/ha. (iii) Treatment differences are not significant. (iv) Av. number of Bhindi/ha.

Treatment	I_0	I_1	I_2	I_3	T_4
Av. no.	14749	21360	15694	18236	14822

Jassids population count

(i) 53·8 (ii) 20·5. (iii) Treatment differences are highly significant. (iv) Av. count of jassids population per plot.

Treatment	I_0	I_1	I_2	I_3	I_4
Mean count	88·8	40·5	40·0	30·0	69·8

C.D.=31·6 degrees

Crop :- Bhindi (*Summer*). **Ref :- T.N. 62(72).**
Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object : - To study the effeet of insecticides to control of Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) 9.2.1962. (iv) (a) 2 ploughings. (b) Hand sowing. (c) 6 Kg/ha. (d) 60 cm.× 45 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+22 Kg/ha. of Super. (vi) H.-483 (Pusa Savani). (vii) Irrigated. (viii) 2 weedings. (ix) 17 cm. (x) June 1962.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1=Endrin 0 02%, I_2=Ekatin 0·1%, I_3=Pestox 0·1% and I_4=Ryania 0·5%.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 61 (48) on page 344.

5. RESULTS :

Yield

(i) 115·4 Q/ha. (ii) 19·0 Q/ha. (iii) Treatment differences are significant. (iv) Av. yield of Bhindi in Q/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	91·5	107·8	116·6	154·8	106·4

C.D.=29·3 Q/ha.

Fruit borer infestation

(i) 22·66 degrees. (ii) 2·59 degrees. (iii) Treatment differences are not significant. (iv) Mean percentage of borer infestation (by number) in degrees.

Treatment	I_0	I_1	I_2	I_3	I_4
Mean angle	22·68	22·95	22·68	21·23	23·75

Crop :- Bhindi (*Summer*). **Ref :- T.N. 64(201).**

Site :- Central Farm A.C. & R.I., Coimbatore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against Jassids on Bhindi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) 30 tonnes/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (ii) Red loam. (iii) 26.2.64. (iv) (a) 2 ploughings and levelling. (b) Hand sowing. (c) 6 Kg/ha. (d) 60 cm.×45 cm. (e) 1. (v) 30 tonnes/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H. 483 (pusa savani). (vii) Irrigated. (viii) Weeding twice. (ix) 9 cm. (x) During May and June 64 (up to 27.6.64).

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Carboryl (sevin) 0·1%, T_2=Trichlorphen (Dipterex) 0·1%, T_3=Dimethoate (Rogor) 0·1%, and T_4=Carbophenothion (Trithion) 0·05%.

The insecticides were sprayed as foliar applications thrice on 18.3.64 ; 3.4.64 and 27.4.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 9·8 m.×2·7 m. (b) 8·5 m.×1·8 m. (v) 60 cm.×45 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Number and weight of infested and good fruits etc. (iv) (a) 1960—1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of fruits by weight

(i) 92·2 Q/ha. (ii) 15·3 Q/ha. (iii) The treatments differences are not significant. (iv) Av. yield of *bhindi* fruits by weight in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield in Kg/ha.	81·1	88·6	90·1	102·0	99 3

Yield of fruits by number

(i) 732596/ha. (ii) 102688/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits by number/ha.

Treatments	T_0	T_1	T_2	T_3	T_4
Av. no./ha.	637920	665470	735960	826310	797320

Infestation of fruit borer

(i) 21·2°. (ii) 1·9°. (iii) Treatment differences are highly significant. (iv) Av. percentage of infestation in degrees.

Treatments	T_0	T_1	T_2	T_3	T_4
Av. infestation	28·1	16·4	20·1	20·8	20·6

C.D.=2·9 degrees.

Crop :- Bhindi (*Summer*). **Ref :- T.N. 60(17).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the insecticidal control of Jassid on Bhindi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) F.Y.M. (Amount N.A.). (ii) Red loam. (iii) 16.5.60. (iv) (a) 1 ploughing. (b) Hand sowing. (c) 5·6 Kg/ha. (d) 61 cm.×45 cm. (e) 1. (v) 6·8 Kg. of A/S and 13·6 Kg. of Super for top dressing for one month old *bhindi* plants .6 C.L. of F.Y.M. (vi) Indian *bhindi*. (vii) Irrigated. (viii) 1 weeding. (ix) 12 cm. (x) 7 harvests from 7.7.60 to 4.8.60.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Malathion 0·1%, T_2=D.D.T. 0·1%, T_3=Endrin 0·02% and T_4=Parathion 0·025% (Folidol).

Treatments applied in 3 rounds.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 30·5 m.×40·2 m. (iii) 4. (iv) (a) 6·4 m.×7·3 m. (b) 4·6 m.×4·9 m. (v) 0·9 m.×1·2 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Most of the plants were infested with vein clearing disease by 10.6.60. Severe attack of mites. (iii) 8 plants were selected at random for each plot one from each of the 8 rows and the jassid population on 3 leaves per plant will be taken (3rd, 4th and 5th leaves). (b) 1960-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of uninfested fruits

(i) 1604 Kg/ha. (ii) 171·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *bhindi* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	919	1544	1710	1757	2092

Number of uninfested fruits

(i) 53300 fruits/ha. (ii) 4719 fruits/ha. (iii) Treatment differences are not significant. (iv) Av. number of uninfested fruits/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. number	33058	50554	56300	54368	72220

Crop :- Bhindi (*Summer*). **Ref :- T.N. 61(5).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the insecticidal control of jassid on Bhindi crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) N.A. (ii) Red loam. (iii) 29.3.61. (iv) (a) 1 ploughing. (b) Hand sowing. (c) 5 Kg/ha. (d) 61 cm.×45 cm. (e) 1. (v) 6·8 Kg. of A/S and 13·6 Kg. of Super for top dressing the one months old bhindi plants. 6·7 C.L./ha. of F.Y.M. before sowing. (vi) H. 127. (vii) Irrigated. (viii) 1 weeding. (ix) 18 cm. (x) 10 harvests from 12.5.61 to 16.6,61.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Thiometon (Ekatin) 0·1%, T_2=Endrin (Endrex) 0·02%, T_3=D.D.T. 0·1% and T_4=Parathion (Ekaton) 0·1%.

Sprayed on 25.4.61 and 6.5.61.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 35·1 m.×21·8 m. (iii) 4. (iv) (a) 9·8 m.×2·7 m. (b) 8·5 m.×1·8 m. (v) A single row of 40 plants alround the experimental area of 56 plants. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Almost all the plants were affected by the vein clearing disease of *bhindi*. (iii) 8 plants were selected at random from each plot and the jassid population (both nymps and adults) on three leaves (3rd, 4th and 5th leaves from the top) per plant were recorded. (iv) (a) 1960-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 5330 Kg/ha. (ii) 207·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of uninfested *bhindi* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	4506	5582	5387	5513	5664

Crop :- Bhindi (*Monsoon*). **Ref :- T.N. 60(27).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical spraying on the yield and control of virus diseases of Bhindi.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) 6.9.60. (iv) (a) 1 ploughing. (b) Hand sowing in nursery and then transplanting. (c) 5·6 Kg/ha. (d) 61 cm.×45 cm. (e) 1. (v) 84 Kg/ha. of A/S+168 Kg/ha. of Super as top dressing one month after sowing ; 6·7 C.L./ha. of F.Y.M. before sowing. (vi) H-127. (vii) Irrigated. (viii) 2 weedings. (ix) 40 cm. (x) 28.11.60.

2. TREATMENTS :

All combinations of (1), (2) and (3) with 2 extra treatments.

(1) 4 types of chemicals : C_1=Meta systox, C_2=Systox. C_3=Pestox and C_4=Ekatin.

(2) 2 concentrations of chemicals : D_1=0·1 and D_2=0·2 percent.

(3) 2 methods of application of chemicals : M_1=As spray and M_2=Through irrigation.

2 extra treatments : E_1=Water spray and E_2=Control (untreated).

3. DESIGN :

(i) R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×6·4 m. (b) 4·3 m.×5·5 m. (v) 0·6 m.×0·5 m. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Mild attack of jassids. (iii) *Bhindi* yield and incidence of insects noted 3 times at an interval of about a fortnight in five plants and incidence of virus disease noted in 20 plants in each plot. (iv) (a) 1960 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27·9 degrees. (ii) 7·2 degrees. (iii) None of the effects is significant. (iv) Mean percentage of crop infestation in degrees.

E_1=N.A., E_2=N.A.

	C_1	C_2	C_3	C_4	D_1	D_2	Mean
M_1	27·0	27·5	27·6	32·6	N.A.	N.A.	28·7
M_2	27·8	28·0	26·3	28·8	N.A.	N.A.	27·7
Mean	27·4	27·8	27·0	30·7	28·7	27·7	28·2
D_1	26·6	29·3	27·5	31·3			
D_2	28·2	26·2	26·5	30·0			

(i) 2412 Kg/ha. (ii) 551·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield in Kg/ha.

E_1=2161 and E_2=2200

	C_1	C_2	C_3	C_4	D_1	D_2	Mean
M_1	2496	2260	2294	2623	2396	2440	2418
M_2	2364	2706	2428	2357	2581	2346	2464
Mean	2430	2483	2361	2490	2488	2393	2441
D_1	2289	2535	2599	2531			
D_2	2571	2429	2123	2449			

Crop :- Bitter gourd (*Monsoon*). **Ref :- T.N. 60(80).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tomato. (c) Nil. (ii) Red loam. (iii) 11.11.60. (iv) (a) 2 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm.×60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M,+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) Mixer. (vii) Irrigated. (viii) 2 weedings. (ix) 14 cm. (x) Crop removed on 27.3.61, harvested in March, 61.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Parathion 0·025%, T_2=Endrin 0·02%. T_3=D.D.T. 0·1% and T_4=Ekatin 0·1%.

The insecticides applied 4 times as foliar application at 900 litres/ha. of spray fluid commencing from 1½ months after germination at 10 days intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 2·4 m × 2·4 m. (with 4 pits of 0·9 m.×0·9 m. with 4 plants in each pit). (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Percentage of incidence by fruit fly and yield of fruits. (iv) (a) 1960—64 (Expts. are modified every year). (b) No. (c) Nil. (v) and (vii) Nil.

5. RESULTS :

(i) 79·4 Q/ha. (ii) 30·5 Q/ha. (iii) Treatment differences are significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	46·0	96·5	118·2	54·9	81·6

C.D.=47·0 Q/ha

Percentage of infestation by number

(i) 19·8°. (ii) 5·6°. (iii) Treatment differences are highly significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean infestation	28·6	15·3	12·7	20·5	21·7

C.D.=8·6 degrees.

Crop :- Bitter gourd (*Monsoon*). **Ref :- T.N. 61(47).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) N.A. (ii) Red loam. (iii) 4.8.61. (iv) (a) 2 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm.×60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H. 279. (vii) Irrigated. (viii) 2 weedings. (ix) 28 cm. (x) Crop removed on 14.12.61 harvested in Nov. and Dec. 61.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Endrin 0·02%, T_2=Thiomoton 0·1%, T_3=Methyl demeton 0·1% and T_4=Parathion 0·02%.

The insecticides applied thrice as foliar application at fortnightly intervals starting 1½ months after sowing at 900 litres/ha. of spraying fluid.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 60(80) on page 351.

5. RESULTS :

Fruit yield by weight

(i) 111·2 Q/ha. (ii) 50·9 Q/ha. (iii) The treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	87·0	110·6	135·2	118·4	104·9

Fruit yield by number

(i) 301078/ha. (ii) 127460/ha. (iii) Treatment differences are not significant. (iv) Mean yield of fruits by number/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean number	289304	282156	335139	309488	289304

Percentage of infestation by weight of fruits in degrees.

(i) 19·2 degrees. (ii) 4·7 degrees. (iii) Treatment differences are significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	22·2	24·7	19·5	15·6	13·9

C.D.=7·3.

Crop :- Bitter gourd (*Monsoon*). **Ref :- T.N. 62(69).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Red loam. (b) N.A. (iii) 17.8.62. (iv) (a) 3 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm.×60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H.—7. (vii) Irrigated. (viii) 2 weedings. (ix) 48 cm. (x) Harvested in Dec- 62 and Jan. 63 crop removed on 31.1.63.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Libaycid 0·1%, T_2=Dipterex 0·1%, T_3=Metasystox 0·1% and T_4=Ekatin 0·1%.

3 foliar applications of insecticides at 10 days interval commencing when the seedlings are 2 months old at 900 litres/ha. of spray fluid.

3. DESIGN : and 4. GENERAL :

Same as in expt no. 60(80) on page 351.

5. RESUETS :

Yield of fruits by weight

(i) 140·2 Q/ha. (ii) 59·1 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	108·1	145·1	134·2	153·2	160·6

Yield of fruits/ha. by number

(i) 882908/ha. (ii) 146540/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits by number/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean number	346910	394010	383920	338080	451620

Percentage of infestation by number of fruits

(i) 23·1 degrees. (ii) 2·9 degrees. (iii) Treatment differences are significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	27·0	20·3	19·7	25·1	23·6

C.D.=4·5.

Crop :- Bitter gourd (*Monsoon*). **Ref :- T.N. 63(91).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Brinjal. (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 2.8.63. (iv) (a) 3 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm. × 60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225·Kg/ha. of Super. (vi) H.—7. (vii) Irrigated. (viii) 2 weedings. (ix) 28 cm. (x) Crop removed on 28.2.64 harvested in Jan. and Feb. 64.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control. T_1=Lebaycid ·1%, T_2=Sevin ·1%, T_3=Rogor ·1% and T_4= Diptex ·1%.

The insecticides applied 3 rounds as foliar application at 10 days intervals at 900 litres/ha. commencing from 2 months after germination.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 60(80) on page 351.

5. RESULTS :

Yield of fruits by weight

(i) 186·4 Q/ha. (ii) 36·6 Q/ha. (iii) The treatment differences are significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	133·5	188·4	226·0	191·3	193·0

C.D.=56·5

Yield of fruits /ha. by number

(i) 754966/ha. (ii) 990·86/ha. (iii) Treatment differences are significant. (iv) Mean yield of fruits by number/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean number	618560	761950	870010	776660	747650

C.D.=152668/ha.

Percentage of infestation

(i) 20·0 degrees. (ii) 2·0 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	25·3	19·6	16·9	18·3	20·0

C.D.=3·0 degrees.

Crop :- Bitter gourd (*Summer*). **Ref T.N.:- . 61(6).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the insecticidal control of the fruit fly Dacus cucurbitae.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Brinjal. (c) F.Y.M. 3766 Q/ha. (ii) (a) Red loam. (b) N.A. (iii) 15.4.1961. (iv) (a) 1 ploughing. (b) Hand sowing. (c) — (d) N.A. (e) 8 seeds/pit. (v) 45·4 Kg/ of F.Y.M./pit. and 45·4 Kg. at the time of flowering. (vi) H-7. (vii) Irrigated. (viii) 1 weeding. (ix) 42 cm. (x) 14, 26, 28.6.61 ; 6, 12, 24.7.61 and 5.8.61.

2. TREATMENTS:

5 insecticidal treatments : T_0=Control, T_1=Endrin (Endrex) 0·02%, T_2=Thiometer (Ekatin) 0·1%, T_3= Methyl demeton (Metasystox) 0·1% and T_4=Parathion (Folidol) 0·25%.

3. DESIGN :

(i) R.B.D, (ii) (a) 5. (b) 25·2 m.×22·0 m. (iii) 4. (iv) (a) and (b) 2·4 m.×2·4 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Percentage of incidence by fruit fly and yield of fruits. (iv) (a) 1955-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatments	Mean % of infestation of fruit flies by number	Mean % of infestation of fruit flies by weight	Mean no of fruits/ha	Mean weight of fruits in Q/ha.
T_0	42·5	43·0	270365	62·6
T_1	43·7	45·1	272468	65·2
T_2	47·4	49·1	277934	75·3
T_3	48.4	47·8	257330	69·2
T_4	38·5	42·7	255227	64·0
G.M.	44·1	45·6	266665	67·3
S.E./Mean	2·6	12·5	28474	8·7
Sig.	N.S.	N.S.	N.S.	N.S.

Crop :- Bitter gourd (*Summer*). **Ref :- T.N. 62(70).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 31.1.1962. (iv) (a) 3 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm.×60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H-7. (vii) Irrigated. (viii) 2 weedings. (ix) 16 cm. (x) May & June 62. Crop removed on 21 6.62.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Thiometon 0·1%, T_2=Melthyl dimeton 0·1%, T_3=Endrin 0·02%, and T_4=Dieldrin 0·01%.

The insecticides were applied 3 rounds as foliar application at fortnightly intervals at 900 litres/ha. commencing from 1½ months after germination.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60 (80) on page 351 .

5. RESULTS :

Yield of fruits by weight

(i) 96·9 Q/ha. (ii) 18·4 Q/ha. (iii) The treatment differences are significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	81·9	107·4	94·3	85·2	115·5

C.D.=28·4 Q/ha.

Yield of fruits/ha. by number

(i) 269490/ha, (ii) 48640/ha. (iii) Treatment differences are not significant. (iv) Mean yield of fruits by number/ha

Treatment	T_0	T_1	T_3	T_2	T_4
Mean number	223370	306120	257350	241030	319580

Percentage of infestation of fruit flies by number

(i) 25·3 degrees. (ii) 3·9 degrees (iii) Treatment differences are significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	27·3	20·6	26·6	29·6	22·3

C.D.=6·0 degrees.

Crop :- Bitter gorud. (*Summer*). **Ref :. T.N. 63(92).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of insecticidal control of fruit fly on Bitter gourd.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Red loam. (b) N.A. (iii) 19.1.1963. (iv) (a) 3 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm. × 60 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H-7. (vii) Irrigated. (viii) 2 weedings. (ix) 8 cm. (x) 5 harvests in June, 63. Crop removed on 1.7.1963.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Lbaycid 0·1%, T_2=Dipterex 0·1%, T_3=Sevin 0·1% and T_4= Ekatin 0·1%.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60 (80) on page 351.

5. RESULTS :

Yield of fruits by weight

(i) 139·5 Q/ha. (ii) 29·4 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	131·0	135·6	165·4	140·2	125·1

Yield of fruits/ha. by number

(i) 495520/ha. (ii) 84580/ha. (iii) Treatment differences are not significant. (iv) Mean yield of fruits by number/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean number	466750	477270	575670	505440	452460

Percentage of infestation by weight of fruits

(i) 25·1 degrees. (ii) 3·8 degrees. (iii) Treatment differences are significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	30·6	22·8	22·5	23·9	25·6

C.D.=5·8 degrees.

Crop :- Bittergourd (*Summer*). **Ref :- T.N. 64(200).**

Site :- Central Farm, Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the Insecticidal control of Epilanchana implicata M. Daus cucurbitae Cog. Margaronia indica S. and Aphis malnae K.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) N.A. (ii) Red loam. (iii) 4.3.1963.(iv) (a) 2 ploughings and forming pits. (b) Hand sowing. (c) N.A. (d) 60 cm. × 60 cm. (e) One. (v) 30 tonnes/ha. of F.Y.M.+112Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H-7. (vii) Weekly once from well. (viii) 2 weedings. (ix) 19 cm. (x) 6.6.64 to 11.9.1964.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Lebaycid (Fenthion) 0·1%, T_2=Sevin (Carbaryl) 0·1%, T_3= Dipterex (Trichlorophon) 0·1% and T_4=Anthis (Formothion) 0·2%.

The insecticides were applied thrice as foliar applications at fortnightly intervals starting when the seedlings are about 2 months old.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 60 (80) on page 351.

5. RESULTS :

Yield of fruits by weight

(i) 254·2 Q/ha, (ii) 19·1 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of bitter gourd fruits in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	191·4	246·9	305·4	272·4	254·8

C.D.=29·5 Q/ha.

Yield of fruits by numbers

(i) 878424/ha. (ii) 97724/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of bitter gourd fruits in numbers/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. no. of fruits per hectre	704340	836370	1057140	919630	874640

C.D.=150570./ha.

Percentage of infestation

(i) 28·2°. (ii) 1·0° (iii) Treatment differences are highly significant. (iv) Av. percentage of infestation in deegrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. percentage	33·3	29·5	25·6	27·9	25·0

C.D.=1·6

Crop :- Brinjal (*Main*). **Ref :- T.N. 65(5).**

Site :- Cotton Breeding Station, Agri. College and Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of soil and foliar application of micro-nutrients on Brinjal.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) 25 tonnes/ha. of F.Y.M.+112 Kg/ha. A/S+224 Kg/ha. Super +112 Kg/ha. of muriate of potash. (ii) (a) Red loamy. (b) N.A. (iii) 27.5.65/15.7.65. (iv) (a) 4 ploughings and forming beds. (b) Raising nurseries. (c) 280 to 420 gm./ha. (d) 76·2 cm.×61·0 cm. (e) 1. (v) 25 tonnes/ha. of F.Y.M.+112 Kg/ha. A/S+224 Kg/ha. of Super +112 Kg/ha. of muriate of potash. (vi) H-128. (vii) Irrigated by well water once in 15 days. (viii) Weeding and hoeing thrice. (ix) 16·0 cm. (x) 27.10.65.

2. TREATMENTS :

All combinations of (1) and (2) with two extra treatments.

(1) 4 micro-nutrients : T_1=Cu+Mn+Zn, T_2=Cu+Mn, T_3=Cu+Zn, T_4=Mn+Zn.
(1) 2 methods of application : M_1=Soil and M_2=Foliar.

Extra treatments : E_0=Pure control and E_1=Water spray.

3. DESIGN :

(i) Factorial in R.B.D. (ii) (a) 10. (b) N.A. (iii) 8. (iv) (a) and (b) 3·7 m.×1·8 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of fruit borer, spraying of folidol every 10 days. (iii) Fruits number, fruits weight and plant height measurements. (iv) (a) No. (b) and (c) Does not arise. (v) (a) Nil. (b) Does not arise. (vi) Nil. (vii) This experiment was conducted by the Botany section of the Agri. College and Res. Instt., Coimbatore.

5. RESULTS :

(i) 106·8 Q/ha. (ii) 36·9 Q/ha. (iii) No effect is significant. (iv) Av. yield of Brinjal in Q/ha.

E_0=116·9 and E_1=98·3

	T_1	T_2	T_3	T_4	Mean
M_1	98·7	87·1	113·1	106·3	101·3
M_2	103·2	110·1	112·5	122·1	112·0
Mean	101·0	98·6	112·8	114·2	106.7

Crop :- Brinjal (*Main*).
Site :- Agri. College and Res. Instt., Coimbatore.
Ref :- T.N. 62(13), 63(20), 64(24).
Type :- 'D'.

Object : To evaluate the effect of micro-nutrients and their mode of application on Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Brinjal. (c) 224 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+224 Kg/ha. of Super+112 Kg/ha. of Mur. Pot. (iii) Red loamy. (iii) 20.7.62/11.9.62 ; 3.7.63/19.8.63 ; 27.5.64/15.7.64. (iv) (a) 4 ploughings and forming beds. (b) Raising nurseries and transplanting. (c) 300 to 420 gm./ha. (d) 60 cm.×75 cm. for 64(24) ; 45 cm.×45 cm. for others. (e) 1. (v) 224 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+224 Kg/ha. of Super+112 Kg/ha. of Mur. Pot. (vi) H-128, (vii) Irrigated. (viii) 3 weedings and hoeings. (ix) 49 cm., 30 cm., 54 cm. (x) 22.2.63 ; 17.12.63 ; 9.11.64.

2. TREATMENTS :

All combinations of (1), (2) and (3)+2 extra treatments.

(1) 3 micro-nutrients : N_1=C/S, N_2=Mn SO_4 and N_3=ZnSo$_4$.
(2) 3 levels of micro-nutrients : S_1=5·6, S_2=11·2 and S_3=22·4 Kg/ha.
(3) 2 methods of application : M_1=Soil application and M_2=Foliar application.

Extra treatments : E_1=Control and E_2=Water spray.

The soil application was done at the time of planting. The foliar application was split up into 3 equal units and applied at fortnightly intervals from one month after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 20. (b) 7·3 m.×18·3 m. (iii) 4. (iv) (a) and (b) 3·7 m.×1·8 m. (b) Nil. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Spraying of folidol, endrin in 1 : 1 ratio to the transplanted crop once in every 10 days for 6 months. (iii) Yield of brinjal. (iv) (a) 1962-64. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) The expts. were conducted by Botanist, Agri. College, Coimbatore. Error variances are heterogeneous and Treatments×years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

62(13)

(i) 72·3 Q/ha. (ii) 15·7 Q/ha. (iii) Main effects of S and M are significant. (iv) Av. yield of brinjal in Q/ha.

$E_1=67·0$, $E_2=93·6$

	N_1	N_2	N_3	M_1	M_2	Mean
S_1	80·2	65·7	55·4	69·5	64·7	67·1
S_2	73·0	84·0	88·7	92·1	71·7	81·9
S_3	65·4	62·8	67·2	71·8	58·4	65·1
Mean	72.9	70·8	70·4	77·8	64·9	71·4
M_1	80·0	76·6	76·8			
M_2	65·7	65·1	64·0			

C.D. for S marginal means=9·0 Q/ha.
C.D. for M marginal means=7·4 Q/ha.

63(20)

(i) 17·3 Q/ha. (ii) 11·6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of brinjal in Q/ha.

$E_1=12·9$, $E_2=24·8$

	N_1	N_2	N_3	M_1	M_2	Mean
S_1	14·9	8·1	15·6	16·2	9·5	12·9
S_2	23·1	15·1	26·9	24·5	18·9	21·7
S_3	13·0	20·9	16·2	17·6	15·8	16·7
Mean	17·0	14·7	19·6	19·4	14·7	17·1
M_1	18·0	16·5	23·8			
M_2	16·0	12·9	15·3			

64(24)

(i) 219·2 Q/ha. (ii) 53·9 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of brinjal in Q/ha.

$E_1=218·3$, $E_2=223·5$

	N_1	N_2	N_3	M_1	M_2	Mean
S_1	206·7	223·7	212·7	216·2	212·5	214·4
S_2	230·0	220·5	225·6	228·4	222·4	225·4
S_3	221·4	186·5	243·7	237·3	197·1	217·2
Mean	219.4	210·2	227·3	227·3	210·7	219·0
M_1	240·6	208·9	232·4			
M_2	198·2	211·5	222·3			

Crop :- Brinjal (*Monsoon*). **Ref :- T.N. 60(16).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the methods of insecticidal control of the bud worm, mite and Epilanchna on Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 30.8.60 ; 15.10.60. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) About 17297 seedlings/ha. (d) 76 cm.×76 cm. (e) 1. (v) 376·6 Q/ha. of F.Y.M.+112·1 Kg/ha. of A/S+224·2 Kg/ha. of Super+112·1 Kg/ha. of Mur. Pot. (vi) H(129) [I.C. 1855]. (vii) Irrigated. (viii) 2 hand hoeings, weedings and 1 earthing up. (ix) 45 cm. (x) 24.12.60 to 10.3.61.

2. TREATMENTS :

5 insecticidal treatments : I_0=Control, I_1=D.D.T. 0·1%, I_2=Endrin 0·02%, I_3=Folidol 0·025% and I_4=Rayina 0·05%.

Sprayed on 11.11.60 ; 30.11.60 and 18.12.60. Chemicals sprayed at the rate of 1100 litres/ha. in each treatment with the given concentrations.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 31·7 m.×31·7 m. (iii) 4. (iv) (a) 3·1 m.×15·2 m. (b) 1·5 m.×13·7 m. (v) 66 cm.×76 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) The incidence of Epilachna in the monsoon season crop of 1960 was almost negligible. (iii) Insect counts and yield. (iv) (a) 1960-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Fruit yield

(i) 7542 Kg/ha. (ii) 1536 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	4680	8243	9144	7890	7754

C.D.=2366·6 Kg/ha.

Av. number of fruits/ha.

(i) 249818. (ii) 47000. (iii) Treatment differences are highly significant. (iv) Mean no. of fruits/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Mean no. of fruits/ha.	163134	269337	285601	265989	265030

C.D.=72416

Crop :- Brinjal (*Monsoon*). **Ref :- T.N. 61(59).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of Epilanchna, budworm and mite on Brinjal.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 29.7.61/30.8.61. (iv) (a) 3 ploughings. (b) Nursery sowing. (c) N.A. (d) 75 cm.×75 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+42 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H-128 (cluster white). (vii) Irrigated. (viii) 2 weedings. (ix) 28 cm. (x) Harvested in Dec. 61. Crop removed on 2.1.62.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Endrin 0·02%, T_2=Thiometon (Ekatin) 0·1%, T_3=Parathion 0·025% and T_4=Methyl demeton 0·1%.

Three foliar application of treatments were given at fortnightly interval when the planted crop was about a month old. 1100 litres/ha. of liquid sprayed in each treatment with the given concentration.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 15·2 m.×3·1 m. (b) 13·7 m.×1·5 m. (v) 76 cm.×76 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) As per treatments. (iii) Counts of adults, grubs, and egg masses were recorded regularly. (iv) (a) 1960-63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1524 Kg/ha. (ii) 650·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Brinjal in Kg/ha

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1050	1130	1690	1520	2230

Crop :- Brinjal (*Monsoon*). **Ref :- T.N. 62(82).**
Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of Epilanchna bud worm and mite on Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 9.7.62/14.8.62. (iv) (a) 3 ploughings. (b) Nursery sowing by hand. (c) N.A. (d) 75 cm.×75 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H.=128 (cluster white). (vii) Irrigated. (viii) 2 weedings. (ix) 52 cm. (x) Crop removed on 27.12.62, harvested during Dec. 62.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Depterex 0·1%, T_2=Metasystox 0·1%, T_3=Folidol 0·025% and T_4=Endrin 0·02%.

2 rounds of spray at fortnightly intervals starting from 1st month of planting. Chemicals sprayed at the rate of 1100 litres/ha. in each treatment with the given concentration.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 61(59) as above.

5. RESULTS :

(i) 1536 Kg/ha. (ii) 1048 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	640	2530	1920	1120	1470

C.D.=1614·8 Kg/ha.

Crop :- Brinjal (*Monsoon*). **Ref :- T.N. 63(103).**
Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of Epilanchna, budworm and mite on Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 12.6.63/13.7.63. (iv) (a) 3 ploughings. (b) Hand sowing. (c) N.A. (d) 75 cm.×75 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H.—128. (vii) Irrigated. (viii) 2 weedings. (ix) 25 cm. (x) Crop removed on 16.12.63, harvested in Nov.—Dec. '63.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Sevin 0·1%, T_2=Depterex 0·1%, T_3=Rogor 0·1% and T_4= Metasystox 0.1%.

3 rounds of foliar application of treatments were given at 10 days interval starting after 30 days of planting the crop.

1100 litres/ha. of the liquid sprayed in each treatment with the given concentrations.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 61(59) on page 361.

5. RESULTS :

(i) 4636 Kg/ha. (ii) 2404·0 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2310	8680	5250	3490	3450

C.D.=3704 Kg/ha.

Crop :- Brinjal (*Summer*). **Ref :- T.N. 62(83).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of Epilanchna, budworm and mite in Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Red loam. (b) N.A. (iii) 7.2.62/21.3.62. (iv) (a) 3 ploughings. (b) Nursery sowing. (c) N.A. (d) 75 cm.×75 cm. (e) 1. (v) 300 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H.—128 (cluster white). (vii) Irrigated. (viii) 2 weedings. (ix) 23 cm. (x) Crop removed on 19.7.62, harvested during June-July, 62.

2. TREATMENTS :

5 insecticidal treatments ; T_0=Control, T_1=Ekatin 0·1%, T_2=Methyl demeton 0·1%, T_3=Sevin 0·1% and T_4=Heptachlor. 3% dust.

2 foliar application of treatments at fortnightly intervals when the crop is about a month old. 1100 litres/ha. of the liquid sprayed in each treatment with the given concentrations.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 61(59) on page 361.

5. RESULTS :

(i) 114·5 Q/ha. (ii) 18·4 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Brinjal in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	88·3	108·2	116·3	185·3	74·6

C.D.=28·4 Q/ha.

Crop :- Brinjal (*Summer*). **Ref :- T.N. 63(104).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of insecticidal control of Epilanchna on Brinjal crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Bhindi. (c) 250 Q/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (ii) (a) Red loam. (b) N.A. (iii) 29.12.62/6.2.63. (iv) (a) 3 ploughings. (b) Nursery sowing. (c) N.A. (d) 75 cm.× 75 cm. (e) 1. (v) 30 tonnes/ha. of F.Y.M.+112 Kg/ha. of A/S+225 Kg/ha. of Super. (vi) H.—123. (vii) Irrigated. (viii) 2 weedings. (ix) 13 cm. (x) Crop removed on 9.6.63 harvested in May-June 63.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Dipterex 0·1%, T_2=Metasystox 0·1%, T_3=Sevin 0·1% and T_4 =Endrin 0·02%.

3 rounds of spray at fortnightly intervals starting from 1st month of planting.

Chemicals sprayed at the rate of 1100 litres/ha. in each treatment with the given concentrations.

3. DESIGN : and 4. GENERAL :

Same as in expt. no. 61(59) on page 361.

5. RESULTS :

(i) 69·4 Q/ha. (ii) 21·4 Q/ha. (iii) The treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	53·7	86·4	64·4	84·8	57·8

Crop :- Cabbage (*N.A*). **Ref :- T.N. 64(12).**

Site :- Private Garden, Naidupuram, Kodaikanal. **Type :- 'D'.**

Object :—To find out the efficacy of the various chemicals in the control of the pests on Cabbage.

1. BASAL CONDITIONS :

(i) (a) Cruciferous vegetable crops only (No specific rotation). (b) Cabbage. (c) Cabbage mixture. (ii) N.A. (iii) 30.7.64. (iv) (a) Manual digging, ploughing with country plough. (b) Planting by hand, (c) No specific seed rate. (d) 61 cm.×46 cm. (e) N.A. (v) 17·3 Q/ha. of Cabbage mixture. (vi) Local seedlings. (vii) Unirrigated. (viii) 1 weeding about 2 months after planting using Ooty mullu. (ix) 68 cm. (x) 20.11.64.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Malathion 0·5% (spraying) at 0·565 Kg/ha., T_2=Parathion 0·025% (spraying) at 0·290 Kg/ha., T_3=Trithion 0·06% (spraying) at 0·678 Kg/ha., T_4= Lindane 0·05% (spraying) at 0·565 Kg/ha., T_5=Dieldrin 0·1% (spraying) at 1·130 Kg/ha., T_6=Sevin 0·1% (spraying) at 1·130 Kg/ha. and T_7=Heptachlor. 6% dusting at 1·360 Kg/ha.

The chemicals were applied on 10.8.64, 2.9.64 and 23.9.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 5·5 m.×6·7 m. (b) 4·9 m.×4.9 m. (v) 30 cm.×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Very low. Three rounds of spraying was given. (iii) Yield of Cabbage and infestation data. (iv) (a) 1964—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 489·8 Q/ha. (ii) 81·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Cabbage in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	442·4	530·4	528·4	541·1	483·4	468·6	462·5	488·4

Reduction in Pest population

(i) 41·6 degrees. (ii) 3·3 degrees. (iii) Treatment differences are highly significant. (iv) Mean reduction in pest population.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. reduction	0·00	65·8	51.8	53·3	47·1	32·1	36·8	45·7

C.D.=5·1 degrees.

Crop :- Cabbage. **Ref :- T.N. 65(2).**

Site :- Private Garden, Naidupuram, Kodaikanal. **Type :- 'D'.**

Object : —To find out the efficacy of various chemicals in the control of pests on Cabbage.

1. BASAL CONDITIONS :

(i) (a) Vegetable crops only (no specific rotation). (b) Cabbage. (c) Cabbage mixture and compost (amount N.A.). (ii) N.A. (iii) 11.1.65. (iv) (a) Manual digging and ploughing with country plough. (b) Planting by hand. (e) No specific seed rate. (d) 61·0 cm.×45·7 cm. (e) 1. (v) Cabbage mixture @ 1729·7 Kg. per hectare. (vi) Local seedlings. (vii) Rainfed. (viii) Weeding once about 2 months after planting using *Goty muller* (ix) 257·2 mm. (x) 26 to 28.4.65.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Malathion 0·05%, T_1=Parathion 0·025%, T_3=Trithion 0·06%, T_4=Heptachlor 6%, T_5=Lindane 0·05%, T_6=Dieldrin 0·1%, and T_7=Sevin 0·1%.

Chemicals have been sprayed in T_1 to T_7 excepting T_4 in which it was dusted. Chemicals were applied @ 28 Kg. dust/ha. in the case of Heptachlor and at 1123 litres/ha. in the case of others. Dates of application were 11.2.65, 3.3.65 and 25.3.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 4·2 m.×3·5 m. (b) 3·2 m.×3·0 m. (v) One row. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Severe attack by diamond back moth. (iii) Yield data and infestation data. (iv) (a) 1965 only. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 52,018 Kg/ha. (ii) 5,942·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Cabbage in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	43021	61510	52552	63177	49922	51250	46224	48490

C.D.=9508·5 Kg/ha.

Crop :- Cauliflower. **Ref :- T.N. 64(13).**

Site :- Private Holding, La Providence, Kodaikanal. **Type :- 'D'.**

Object :—To find out the efficacy of the various chemicals in the control of the pest diamond back moth on Cauliflower.

1. BASAL CONDITIONS :

(i) (a) Cruciferous vegetable crops only (no specific rotation). (b) Cauliflower. (c) 14·8 Q/ha. of cabbage mixture and compost. (ii) N.A. (iii) 2.7.64. (iv) (a) Manual digging and ploughing with country plough. (b) Planting of seedlings by hand. (c) No specified seed rate. (d) 61 cm.×46 cm. (e) N.A. (v) 14·8 Q/ha. of Cabbage mixture and compost. (vi) Local seedlings. (vii) Irrigated. (viii) Interculture weeding etc., by hand using *Goty muller* (ix) 77 cm. (x) 23.10.64.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=Malathion 0·05% spray at 0·565 Kg/ha., T_2=Parathion 0·025% spray at 0·290 Kg/ha., T_3=Trithion 0·06% spray at 0·678 Kg/ha., T_4=D.D.T. 0·1% spray at 1·130 Kg/ha. and T_5=Lindane 0·05% spray at 0·566 Kg/ha.

Insecticidal liquid sprayed at 1123 litres/ha. on 18.7.64, 12.8.64 and 5.9.64.
The above values are per round of spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 4·9 m.×3·4 m. (b) 4·6 m.×3·1 m. (v) 15 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Heavy incidence of diamond back moth was noted. Spraying the chemicals in tri-weekly rounds done three times. (iii) Yield of cauliflower and infestation data. (iv) (a) 1964-only. (b) No. (c) Nil. (v) Nil. (vi) Heavy rain during October 64. (vii) Nil.

5. RESULTS :

Yield

(i) 227·1 Q/ha. (ii) 32·0 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of cauliflower in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	163·9	285·2	201·8	266·1	200·9	244·7

C.D.=52·4 Q/ha.

Infestation

(i) 52·5 degrees. (ii) 5·0 degrees. (iii) Control vs. rest and insecticidal treatments among themselves are highly significant. (iv) Mean reduction in pest population (in degrees).

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean reduction	0·0	79·9	57·4	59·7	68·1	50·0

C.D. for control vs rest =5·8 degrees.
C.D. for insecticidal treatments=7·5 degrees.

Crop :- Corriander (*Main*). **Ref :- T.N. 64(56).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To study the control measures of powdery mildue of corriander.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 123·5 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (ii) Black soil. (iii) 20.10.64. (iv) (a) 2 ploughings. (b) Line sowing. (c) 15 Kg/ha. (d) 30 cm.×15 cm. (e) 1. (v) 123·5 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) Local. (vii) Unirrigated. (viii) Thinning, weeding and gap filling. (ix) 29 cm. (x) 3.2.65.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control ,T_1=Dithane 0·2% at 1130 litres/ha., T_2=Wet Sulphur 1% at 1130 litres/ha., T_3=Sulphur dust 22·6 Kg/ha. and T_4=Bordeaux mixture 1% at 1130 litres/ha.

The treatment commenced one month after sowing and then repeated twice at 20 days interval.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) 3·7 m.×1·8 m. (b) 3·1 m.×1·8 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield of corriander. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 260 Kg/ha. (ii) 64·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of corriander in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	225	274	166	297	340

Crop :- Fieldbean (*Monsoon*). **Ref :- T.N. 65(39).**

Site :- Central Farm A.C. and R.I., Coimbatore. Type :- 'D'.

Object :—To study the effect of insecticides for the control of Pod borers.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Red gram. (c) 12 M-tonnes/ha. of C.M. (ii) Loamy soil. (iii) 5.9.65. (iv) (a) 3 ploughings. (b) Sowing behind the country plough. (c) 20 Kg/ha. (d) 91 cm.×23 cm. (e) 1. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) D.L.-231. (vii) Unirrigated. (viii) Hand weeding.(ix) 30 cm. (x) 23.1.66.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Carboryl 10% dust at 2·5 Kg/ha., T_2=D.D.T. 5% dust at 1·25% Kg/ha., T_3=B.H.C. 1% dust at 2·5 Kg/ha., T_4=Trichlorophon 5% dust at 1·25 Kg/ha., T_5=Endrin 1% dust at 0·25 Kg/ha., T_6=Carbophenothion 2% dust at 0·5 Kg/ha. and T_7=Imidan 2% dust at 0·5 Kg/ha.

The dust formulations are applied twice in December at 2 weeks interval at 25 Kg/ha. per round.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 9·5 m.×6·1 m. (b) 7·3 m.×5·5 m. (v) 1·1 m.×0·3 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Yield and percentage of infection. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 449 Kg/ha. (ii) 66·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of seeds in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	366	535	450	397	369	507	475	489

C.D.=109·2 Kg/ha.

Percentage of affected pods

(i) 14·1 degrees. (ii) 2·9 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of affected pods (in degrees).

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean incidence	11·8	11·5	13·6	14·8	12·9	12·3	11·7	23·9

C.D.=4·7 degrees.

Crop :- Field bean (*Monsoon*). **Ref :- T.N. 62(94).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To find out the effect of different insecticides on field bean pod borers.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) Nil. (ii) Black loam. (iii) 17.7.1962. (iv) (a) 3 ploughings with iron plough. (b) Sowing behind the plough. (c) 20 Kg/ha. (d) 91 cm.×23 cm. (e) 1. (v) Nil. (vi) D.L. 2542. (vii) Unirrigated. (viii) 1 weeding. (ix) 38 cm. (x) 7.1.1963.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=B.H.C. 10% dust at 25 Kg/ha., T_2=D.D.T. 5% dust at 25 Kg/ha., T_3=Dieldrin 0·1% spray, T_4=Dipterex 0·1% spray, T_5=Endrin 0·02% spray, T_6=Parathion 0·025% spray and T_7=Metasystox 0·1% spray.

Spraying done at 925 litres/ha., thrice at fortnightly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 11·0 m.×8·5 m. (b) 10·1 m.×6·1 m. (v) 46 cm.×122 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of pod borers and yield of bean. (iv) (a) 1962-1964 (expt. changed every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 354 Kg/ha. (ii) 124·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of bean in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	325	371	347	364	314	386	414	314

Pod borer incidence

(i) 39·95 degrees. (ii) 7·57 degrees. (iii) Treatment differneces are significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean inidence	44·8	42·6	36·2	35·5	42·2	37·4	40·0	41·0

C.D.=7·0 degrees

Crop :- Fieldbean (*Monsoon*). **Ref :- T.N. 63(118).**

Site :- Millet Breeding Stn., Coimbatore. **Type :- 'D'.**

Object :— To find out the effect of different Insecticides on fieldbean pod borers.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Red gram. (c) Nil. (ii) Red loam. (iii) 1.9.1963. (iv) (a) 3 ploughings with iron plough. Dibbling in lines. (c) 20 Kg/ha. (d) 91 cm.×23 cm. (e) 1. (v) N.A. (vi) D.L. 1428. (vii) Irrigated. (viii) 2 weedings. (ix) 27 cm. (x) 6.2.64, 24.2.64 and 16.3.64.

2. TREATMENTS:

8 insecticidal treatments : T_0=Control, T_1=Carboryl 0·1% spray, T_2=Dieldrin 0·1% spray, T_3=Dylox 0·1% spray, T_4=Endrin 0·02% spray, T_5=Parathion 0·025% spray, T_6=Methyl demeton 0·1% spray and T_7=D.D.T. 5% dust at 25 Ka/ha.

Spraying at 925 litres/ha,, thrice at fortnightly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×4·6 m. (b) 7·3 m.×3·7 m. (v) 96 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of Pod borers and yield of bean. (iv) (a) 1962-1964 (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 502 Kg/ha. (ii) 342·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of bean in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	215	530	430	640	521	731	349	599

Crop :- Fieldbean (*Monsoon*). **Ref :- T.N. 64(123).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To find out the effect of different insecticides on field bean pod borer.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cumbu. (c) Nil. (ii) (a) Red loam. (b) N,A. (iii) 15·8.1964. (iv) (a) 3 ploughings with iron plough. (b) Sowing behind the plough. (c) 20 Kg/ha. (d) 91 cm.×23 cm. (e) 1. (v) N.A.(vi) D.L. 1428. (vii) Unirrigated. (viii) 1 weeding. (ix) 38 cm. (x) 19.2.1965.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Carboryl 10% dust, T_2=D.D.T. 5% dust, T_3=B.H.C. 10% dust, T_4=Dipterex 5% dust, T_5=Endrin 1% dust, T_6=Trithion 2% dust and T_7=Imidan 2% dust.

All insecticides applied at 25 Kg/ha. twice on 5.1.1965 and 20.1.1965.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 8·5 m.×7·0 m. (b) 6·1 m.×6·1 m. (v) 122 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Incidence of pod borer and yield of bean. (iv) (a) 1962-1964 (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 180 Kg/ha. (ii) 71·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of bean in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	142	266	160	110	201	228	127	208

(i) 23·99 degrees. (ii) 4.46 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean Incidence	44·65	17·85	19·41	23·28	22·34	23·45	19·61	21·30

C.D.=6·56 degrees

Crop :- Sweet Potato (*Summer*). **Ref :- T.N. 61(43), 62(65), 63(87).**

Site :- Agr. College and Res. Instt.,
Coimbatore. **Type :- 'D'.**

Object : — To find out the effect of different insecticides on Sweet Potato weevil.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy. (iii) 2.1.1961, Jaunary, 1962 ; Jaunary, 1963. (iv) (a) 3 ploughings and forming ridges. (b) Hand sowing. (c) N.A. (d) 60 cm.×23 cm. (e) 1. (v) N.A. (vi) V-8. (vii) Unirrigated. (viii) Weeding. (ix) 19 cm., 16 cm., 12 cm. (x) June 1961 ; June, 1962 ; June, 1963.

2. TREATMENTS :

12 insecticidal treatments : T_0=Control, T_1=Endrin 0·02%, T_2=Parathion 0·025%, T_3=Dieldrin 0·1%, T_4=D.D.T. 0·1%, T_5=Aldrin 0·1%, T_6=B.H.C. 0·1%, T_7=D.D.T. 5% dust, T_8=B.H.C. 10% dust, T_9=Dieldrin 1·5%, T_{10}=Aldrin 1% and T_{11}=Endrin 1%.

Treatments T_1 to T_6 were applied by spraying and T_7 to T_{11} by soil application. The dust formulations were applied to the soil only once at the base of the plants (by digging up the earth and covering them with the dug up soil) at the rate of 2·2 Kg/ha. of actual gradient when the crop was 2½ months old and when the tuber formation has just commenced. The spray foliage were applied on the foliage and exposed parts of the vines at the rate of 900 litres/ha. of spray fluid. Three rounds of spraying done at fortnightly intervals commencing from the time of tuber formation.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4 for 61 (43) ; 3 for others. (iv) (a) 7·9 m.×6·1 m. for 63 (87) ; 7·3 m.×4·9 m. for others. (b) 7·3 m.×5·5 m. for 63 (87) ; 6·1 m.×4·4 m. for others. (v) 30 cm.×30 cm. for 63 (87) ; 61 cm.×23 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Tuber yield. (iv) (a) 1961 to 1963. (b) No. (c) Results of combined analysis are given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are N.A. Treatments×years interaction is taken as error for testing treatments differences.

5. RESULTS :

(i) 73·7 Q/ha. (ii) 22·5 Q/ha. (based on 22 d.f. made up of Treatments×years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of tuber in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	59·1	91·4	65·7	69·4	63·6	83·9
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	79·6	59·9	70·6	80·9	90·2	69·8

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
1961	78·4	100·7	56·8	119·9	53·4	62·3	89·4	64·7	82·4
1962	55·0	37·8	44·3	35·1	44·6	49·4	55·6	45·0	35·9
1963	43·8	135·8	96·1	53·2	92·2	140·1	93·9	70·1	93·5
Pooled	59·1	91·4	65·7	69·4	63·6	83·9	79·6	59·9	70·6

Years	T_9	T_{10}	T_{11}	Sig.	G.M.	S.E./plot.
1961	93·0	123·4	80·0	N.S.	83·7	N.A.
1962	46·9	45·9	53·0	N.S.	45·7	N.A.
1963	102·7	101·4	76·3	N.S.	91·7	N.A.
Pooled	80·9	90·2	69·8	N.S.	73·7	22·5

Crop :- Tapioca (*Rabi*). **Ref :- T.N. 63(33).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve suitable control measures against Tapioca scale.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tapioca. (c) N.A. (ii) Sandy loam. (iii) N.A./3.1 63. (iv) (a) 2 ploughings and forming ridges and furrows. (b) Line planting in ridges. (c) N.A. (d) 91 cm.×61 cm. (e) 1. (v) 500 Kg/ha. of F.Y.M. (vi) Mala vella. (vii) Irrigated. (viii) Weeding. (ix) 22 cm. (x) 23rd and 24th September, 1963.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=Parathion 0·05% spray, T_2=Malathion 0·1% spray, T_3=Ekatin 0·1% spray, T_4=Dipterex 0·1% spray and T_5=Metasystox 0·1%.

The treatments were given only once when the scales appeared on the Crops at 900 litres per hectare of spray fluid.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 6·6 m.×3·8 m. (b) 5·2 m.×2·6 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Counts of total and dead scales were taken prior to and one week and 2 weeks after treatments. Yield of Tapioca. (iv) (a) 1960—65 (modified in 1964). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield or Tapioca.

(i) 84·7 Q/ha. (ii) 14·8 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Tapioca in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	13·9	85·9	67·5	75·6	106·6	158·6

C.D =22·4 Q/ha.

Incidence of Scales.

(i) 48·8 degrees. (ii) 3·0 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of dead scales a week after treatment in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean incidence	8·5	66·8	46·3	53 5	60·2	57·6

C.D.=4·5 degrees.

Crop :- Tapioca. **Ref :- T.N. 64(36).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To evolve suitable control measures against Tapioca scale, Aonidemytilus albus CKV.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 30.9.63. (iv) (a) 2 ploughings, forming ridges and furrows. (b) Line planting on the ridges. (c) N.A. (d) 91 cm.×61 cm. (e) 1. (v) Nil. (vi) Malavilla. (vii) Irrigated. (viii) Weeding. (ix) 36 cm. (x) 9.7.64.

2. TREATMENTS :

7 insecticidal treatments : T_0=Control, T_1=Parathion 0·05% spray, T_2=Malathion 0·1% spray, T_3=Fishoil Rosin Soup+Malathion 0·1% spray, T_4=Thiometon 0·1% spray, T_5=Dylox 0·1% spray and T_6=Methyl dencton 0·1% spray.

The chemicals applied as foliar sprays only once when the scales appeared on the crop at 900 litres/ha. of spray fluid.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 6·1 m.×3·1 m. (b) 5·5 m.×2·4 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Very bad. (ii) As per treatments. (iii) Counts of scales before and after the treatments are applied and yield of Tapioca. (iv) (a) 1960—65 (modified in 64). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Tapioca yield.

(i) 144 Kg/ha. (ii) 107·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Tapioca in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	58	265	127	106	138	148	164

Incidence of Scales.

(i) 34·7 degrees. (ii) 4·0 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of dead scales in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle	11·6	51·3	29·2	35·0	29·7	51·0	35·5

C.D.=6·0 degrees.

Crop :- Tomato (*Summer*). **Ref :- T.N. 60(19).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the control measures of fruit borers Heliothis arnigera H and prodemia litura F.

1. BASAL CONDITIONS :

(i) Nil. (ii) Red loam. (iii) 21.3.60/14.4.60. (iv) (a) 3 ploughings. (b) Transplanting. (c) 0·28 Kg/ha. (d) 76 cm.×76 cm. (e) N.A. (v) 376·6 Q/ha. of F.Y.M.+112.1 Kg/ha. of A/S+224·2 Kg/ha. of Super+112·1 Kg/ha. of Mur. Pot. (vi) H.—123 (Meeruti). (vii) Irrigated. (viii) Weeding was given as and when required. (ix) 20 cm. (x) 10 harvests from 30.6.60 to 6.8.60.

2. TREATMENTS :

5 chemical treatments : T_0=Control, T_1=Malamion 0·1%, T_2=D.D.T. 0·1%, T_3=Calcium eusenate+lime and T_5=Endrin (Endrex) 0·02%.

Spraying on 17.5.60, 4.6.60 and 28.6.60.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 42·7 m.×35·4 m. (iii) 4. (iv) (a) 7·6 m.×7·6 m. (b) 6·1 m·×6·1 m. (v) 76 cm. ×76 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) As per treatments. (iii) At each harvest, the infested fruits were counted and weighed and the percentage of infestation worked out. Yield of Tapioca. (iv) (a) to (c) No. (v) and (vi) Nil. (vii) The percentage of infestation was very low, hence the efficacy of the various treatments could not be assessed.

5. RESULTS :

Fruit yield by weight

(i) 9462 Kg/ha. (ii) 2528 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruit in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	10182	10786	9055	9180	8106

Fruit yield by number

(i) 29002 Q/ha. (ii) 74109 Q/ha. (iii) Treatment differences are not significant. (iv) Mean yield of fruits by numbers/ha,

Treatment	T_0	T_1	T_2	T_3	T_4
Mean no. of fruit/ha.	312692	334083	262168	296343	244812

Crop :- Sugarcane. **Ref :- T.N. 63(142), 64(163).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :—To study the effect of varying doses of N as straight fertilizer and incombination with organic nitrogen on a long range basis.

1. BASAL CONDITIONS :

(i) (a) G.M.—Paddy—Sugarcane for 63, first ratoon for 1964. (b) Paddy for 63, Sugarcane for 64. (c) 45 Kg/ha. of N as A/S. (ii) Sandy loam. (iii) 4.5.63; 30.3.64 (ratoon). (iv) (a) 2 ploughings with iron plough, working in junior hoe and opening trenches with victory plough. (b) Planting setts along furrows. (c) 37000 three budded setts/ha. (d) 100 cm. between rows. (e) 2. (v) As per treatments. (vi) Co.—449. (vii) Irrigated. (viii) 2 weedings, 2 diggings, trashing and earthing up. (ix) 130 cm. in 63, 107 cm. in 64. (x) 8.3.64, 17.3.65.

2. TREATMENTS :

All the 8 combinations of (1), (2) and (3)

Main-plot treatments :

(1) 2 levels of compost : $C_0=0$, $C_2=250$ Q/ha.

(2) 2 levels of P : $P_0=0$, $P_1=112$ Kg/ha.

(3) 2 levels of K : $K_0=0$, $K_1=336$ Kg/ha.

Sub-plot treatments :

All the combination of (1) and (2)

(1) 3 levels of N : $N_1=168$, $N_2=280$, $N_3=392$ Kg/ha.

(2) 2 sources of N : S_1=A/S, S_2=A/S+G.N.C. in 2 : 1 ratio.

3 DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication, 6 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 12 m.×8 m. for 1963 ; 12 m.×9 m. for 64. (b) 10 m.×7 m. for 1963 ; 10 m.×7 m. for 1964. (v) One row either side. (vi) Yes.

4. GENERAL :

(i) Good, Lodged due to cyclone for both years. (ii) Early shoot borer was noticed and Endrin was sprayed. (iii) Cane yield. (iv) (a) 1963, 1964 (available). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous. Results of individual years are presented under 5. Results.

5. RESULTS :

63(142)

(i) 752·5 Q/ha. (ii) (a) 235·9 Q/ha. (b) 126·3 Q/ha. (iii) Interaction P×S alone is significant. (iv) Av. yield of Sugarcane in Q/ha.

	N_1	N_2	N_3	S_1	S_2	K_0	K_1	P_0	P_1	Mean
C_0	728·6	810·0	714·4	749·0	753·0	766·1	735·9	716·7	785·4	751·0
C_1	699·5	780·8	781·8	766·8	741·2	743·7	764·4	719·3	788·7	754·0
Mean	714·1	795·4	748·1	757·9	747·1	754·9	750·2	718·0	787·0	752·5
P_0	714·4	754·7	684·8	752·0	684·0	701·3	734·8			
P_1	713·7	836·1	811·4	763·8	810·2	808·4	765·6			
K_0	694·2	810·3	760.2	748·0	761·7					
K_1	733·9	780·5	736·0	767·8	732·5					
S_1	731·4	785·3	757·1							
S_2	696·7	805·5	739·1							

C.D. for S means at the same level of P=73·7 Q/ha.

C.D. for P means at the same level of S=122·4 Q/ha.

64(163)

(i) 1997·5 Q/ha. (ii) (a) 184·9 Q/ha. (b) 207·4 Q/ha. (iii) N.A. (iv) Av. yield of Sugarcane in Q/ha.

	N_1	N_2	N_3	S_1	S_2	K_0	K_1	P_0	P_1	Mean
C_0	1905·4	1970·2	2080·9	1996·1	1974·9	1969·4	2001·6	2039·3	1931·7	1985·5
C_1	2012·0	1972·4	2044·0	2002·3	2016·6	2035·1	1983·8	1971·9	2047·1	2009·5
Mean	1958·7	1971·3	2062·5	1999·2	1995·8	2002·2	1992·7	2005·6	1989·4	1997 5
P_0	2018·5	1958·3	2039·9	2020·9	1990·2	1994·7	2016·4			
P_1	1898·9	1984·3	2085·0	1977·4	2001·3	2009·8	1969 0			
K_0	1941·4	2000 4	2064·9	1973·8	2030·6					
K_1	1975·9	1942·2	2060·0	2024·5	1960 9					
S_1	1966·2	1927·7	2103·7							
S_2	1951·2	2014·9	2021·2							

Crop :- Sugarcane. **Ref :- T.N. 63(154), 64(162).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :—To study the effect of different levels of N as straight fertilizers and in combination with organic Nitrogen on a long term basis.

1. BASAL CONDITIONS :

(i) (a) Sugarcane plant crop-I ratoon Plant and Crop for 63, sugarcane plant crop-I ratoon-groundnut-Paddy for 64. (b) Sugarcane. (c) 280 Kg/ha. of N as A/S. (ii) Sandy loam. (iii) 4.5.63, 4.4.64. (iv) (a) 2 ploughings with iron plough. (b) Planting setts along furrows. (c) 37000 three budded setts/ha. (d) 100 cm. between rows. (e) 1. (v) As per treatments. (vi) Co-449. (vii) Irrigated. (viii) 3 weedings, 2 digging and trashing. (ix) 130 cm. in 63, 107 cm. in 64. (x) 6th to 10th March 64, 13.3.65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 2 levels of compost : $Co=0$, $C_1=250$ Q/ha.
(2) 2 levels of P_2O_5 : $P_0=0$ and $P_1=112$ Kg/ha.
(3) 2 levels of K_2O : $K_0=0$ and $K_1=336$ Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : $N_1=168$, $N_2=280$, and $N_3=392$ Kg/ha.
(2) 2 sources of N : S_1=A/S and S_2=A/S+G.N.C. in 2 : 1.

3. DESIGN :

(i) Split plot. (ii) (a) 8 main-plots/replication, 6 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 12 m.×9 m. for 63, 12 m.×8 m. for 64. (b) 10 m.×7 m. for 63 10 m.×6 m. for 64. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good, lodging noticed during Oct. due to cyclone. (ii) Endrine sprayed against early shoot-borer in 63 and in 64-Nil. (iii) Cane yield. (iv) (a) 1963-64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous. Results of individual years are presented under 5. Results.

5. RESULTS :

63(154)

(i) 838 0 Q/ha. (ii) (a) 158·3 Q/ha. (b) 103·5 Q/ha. (iii) Main effect of 'N' is highly significant. (iv) Av. yield of sugarcane in Q/ha.

	N_1	N_2	N_3	S_1	S_2	K_0	K_1	P_0	P_1	Mean
C_0	756·1	840·8	842·9	814·2	812·4	801·1	825·4	830·8	795·8	813·3
C_1	801·2	863·0	924·1	872·0	853·6	864·3	861·3	876·2	849·3	862·8
Mean	778·7	851·9	883·5	843·1	833·0	832·7	843·4	853·5	822·6	838.0
P_0	807·1	833·5	919·9	870·1	836·9	845·4	861·6			
P_1	750·3	870·3	847·1	816·1	829·0	820·0	825·1			
K_0	759·1	841·1	897·9	844·4	821·0					
K_1	798·3	862·7	869 1	841·8	844·9					
S_1	777·4	868·1	883·7							
S_2	779·9	835·7	883·3							

C.D. for N marginal means=52·3 Q/ha.

64(162)

(i) 1248·3 Q/ha. (ii) (a) 163·2 Q/ha. (b) 225·7 Q/ha. (iii) Main effect of 'K' is significant. (iv) Av. yield of sugarcane in Q/ha.

	N_1	N_2	N_3	S_1	S_2	K_0	K_1	P_0	P_1	Mean
C_0	1206·4	1277·9	1341·0	1310·6	1239·7	1206·2	1344·0	1255·9	1294·3	1275·1
C_1	1171·6	1189·6	1303·2	1237·8	1205·1	1167·2	1275·7	1255·1	1187·8	1221·5
Mean	1189·0	1233·7	1322·1	1274·2	1222·4	1186·7	1309·8	1255·5	1241·1	1248·3
P_0	1225·2	1231·0	1310.3	1297·0	1214·0	1231·2	1279·8			
P_1	1152·9	1236·4	1334·0	1251·3	1230·8	1142·2	1339·9			
K_0	1130·9	1158·5	1270·8	1180·1	1193·3					
K_1	1247·1	1309·0	1373·4	1368·2	1251·5					
S_1	1192·5	1262·7	1367·4							
S_2	1185·5	1204·8	1276·4							

C.D. for K marginal means=78·8 Q/ha.

Crop :- Sugarcane.
Site :- Central Sugarcane Res. Stn.,
Cuddalore.

Ref :- T.N. 62(101), 63(124), 64(130).
Type :- 'M'.

Object :—To study the effect of Molasses on the yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-*Sunhemp* for 62(101) ; Nil for others. (b) G.M. for 63(124) ; *sunhemp* for others. (c) Nil. (ii) (a) Clay loam for 63(124) ; Loam for others. (b) Refer soil analysis, Cuddalore. (ii) 25.4.62 ; 20.3.63 ; 15.5.64. (iv) (a) 2 ploughings and harrowing with tractor and opening trenches with victory plough. (b) Planting setts along furrows. (c) 37000 setts (3 buded)/ha. (d) 100 cm. between rows. (e) Nil. (v) 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio in two equal doses on 45th and 90th day after planting. (vi) Co-419 (late). (vii) Irrigated. (viii) 3 weedings, 2 diggings, trashing, propping, partial and final earthing up. (ix) 119 cm., 140 cm., 110 cm. (x) 27.3.63 ; 21, 22.3.64 ; 27 to 29.5.65.

2. TREATMENTS :

6 seed soaking treatments : T_0=Control (no soaking and no spraying), T_1=Soaking overnight in molasses solution, T_2=Soaking overnight in water and crop foliage sprayed with molasses solution, T_3=Soaking in water and crop irrigated with molasses, T_4=Soaking in water, irrigated with molasses and foliage sprayed with molasses and T_5=Soaking in water and sprayed with water.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iiii) 4. (iv) (a) 12 m.×10 m. (b) 10 m.×8 m. (v) 100 cm.×100 cm. (v) Yes.

4. GENERAL :

(i) Good. Severe lodging due to cyclone wind on 20.10.63 for 63(124). (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1962-1964. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1100·1 Q/ha. (ii) 319·4 Q/ha. (based on 10 d.f. made up of Treatments×years interaction. (iii) Treatment differences are not significant. (iv) Av. yield of cane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1076·6	1027·0	1082·2	1159·7	1097·2	1157·9

Years	T_0	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1962	1110·8	1377·9	1185·5	1394·0	1307·8	1120·3	N.S.	1249·4	217·2
1963	1264·0	1023·0	1033·5	1092·8	1173·2	1147·8	N.S.	1122·4	143·0
1964	855·1	680·1	1027·6	922·4	810·5	1205·5	*	928·5	151·0
Pooled	1076·6	1027·0	1082·0	1136·4	1097·1	1157·8	N.S.	1100·1	319·4

Crop :- Sugarcane.

Ref :- T.N. 60(89), 61(68), 62(97).

Sit :- Central Sugarcane Res. Stn.,
Cuddalore.

Type :- 'M'.

Object :—To compare the efficacy of the fertilizer 'Nitrophoska' over other fertilizers for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M.-Paddy for 61(68) ; Nil for others. (b) Paddy. (c) 5600 Kg/ha. of G.M.+168 Kg/ha: of A/S for 60(39) ; 45 Kg/ha. of N as A/S for 61(68) ; 5600 Kg/ha. of G.M.+45 Kg/ha. of N as A/S for 62(97). (ii) (a) Clay loam. (b) Refer soil analysis, cuddalore. (iii) 21.4.60 ; 7.3.61 ; 3.2.62. (iv) (a) Opening trenches with victory plough after tractor ploughing. (b) Planting setts along furrows. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows, (e) Nil. (v) Nil. (vi) Co-419(late). (vii) Irrigated. (viii) 3 weedings+2 diggings, trashing and earthing up. (ix) 173 cm., 122 cm., 118 cm. (x) 12.3.61, 31.1.62, 25.163.

2. TREATMENTS :

6 manurial treatments : M_0=Control (no manure), M_1=280 Kg/ha. of N, M_2=280 Kg/ha. of P_2O_5, M_3=M_1+M_2, M_4=M_1+M_2+280 Kg/ha. of K_2O as Nitrophoska green and M_5=M_1+M_2+440 Kg/ha. of K_2O as Nitrophoska blue.

N was applied as AIS and P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. for 62(97) ; 20 m.×30 m. for others. (iii) 4 for 62(97) ; 6 for others. (iv) (a) 12 m.×10 m. for 62(97) ; 10 m.×10 m. for others. (b) 10 m.×8 m. for 62(97) ; 8 m.×8 m. for others. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Crop lodged in November for 60(89). (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1960-1962. (b) No. (c) Nil. (v) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments× years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

Years	M_0	M_1	M_2	M_3	M_4	M_5	Sig.	G.M.	S.E./plot
1960	571·5	1239·4	622·7	1423·7	1227 3	1300·9	*	1064·2	217·5
1961	525·4	1515·1	572·5	1558·9	1390·5	1362·5	*	1154·2	702·4
1962	512·1	1025·2	629·5	1126·5	1191·4	1214·5	*	949·9	206·1
Pooled	536·3	1259·9	608·2	1369·7	1269·7	1292·6	—	1056·1	—

Crop :- Sugarcane. **Ref :- 61(70), 62(99), 63(123).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :—To evaluate the response of Deoiled cake as manure on the yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M. for 62(99) ; Nil for others. (b) G.M. for 62(99) ; Paddy for others. (c) Nil for 62(99) ; 45 Kg/ha. of N as A/S for others. (ii) Sandy loam for 63(123) ; Loam for others. (iii) 16.3.61 ; 22.5.62 ; 3.4.63. (iv) (a) 2 ploughings+1 harrowing with tractor and openingtrenches with victory plough. (b) Planting setts along furrows. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) Nil. (vi) Co-419 (late). (vii) Irrigated. (viii) 3 weedings+2 diggings, trashing, propping and earthing up. (ix) 122 cm., 131 cm., 132 cm. (x) 29.1.62., 18.4.63 ; 21.3.64.

2. TREATMENTS :

4 sources of N at 225 Kg/ha. : S_1=A/S+Deoiled cake in 2 : 1 ratio, S_2=A/S+Expeller cake in 2: 1 ratio, S_3=Expeller cake and S_4=Deoiled cake.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 12 m.×10 m. for 63(123) ; 16 m.×10 m. for others. (b) 10 m.×8 m. for 63(123) ; 14 m.×8 m. for others. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Crop lodged due to cyclone wind on 20.10.63 for 63(123). (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1961-1263. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 1234·2 Q/ha. (ii) 227·2 Q/ha. (based on 45 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of cane in Q/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	1284·0	1307·3	1158·4	1187·2

Years	S_1	S_2	S_3	S_4	Significance	G.M.	S.E./plot
1961	1437·2	1511·3	1385·3	1265·7	N.S.	1399·9	191·3
1962	1317·1	1030·4	1050·2	1299·8	N.S.	1174·4	282·2
1963	1108·7	1287·9	1003·7	1033·7	N.S.	1108·5	188·9
Pooled	1287·6	1276·5	1146·4	1199·7	N.S.	1227·6	227·2

Crop :- Sugarcane. **Ref :- T.N. 61(69), 62(98).**

Site :- Central Sugarcane Res., Stn., Cuddalore. **Type :- 'M'.**

Object :—To find out the alternate source of N instead of A/S and to determine the efficacy of different fertilizers for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 12, 13.3.1961 ; 8.2.1962. (iv) (a) 2 ploughings+1 harrowing with tractor and opening trenches with victory plongh (b) Planting setts along furrows. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) N.A. (v) Nil. (vi) Co.—419 (late), (vii) Irrigated. (viii) 3 weedings+2 diggings, trashing, propping and earthing up. (ix) 122 cm., 119 cm. 8, 10.2.1962 ; 30.1.1963.

2. TREATMENTS :

4 sources of N at 280 Kg/ha. : S_1=Urea, S_2=A/S, S_3=C/A/N and S_4=A/S/N.
N applied in 2 equal doses on the 45th and 120th days after planting.

3. DESIGN :

(i) R.B.D. (ii) 4. (b) N.A. (iii) 6. (iv) (a) 12 m.×10 m. (b) 10 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1961—1962. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Results of indvidual years are presented under 5. Results.

5. RESULTS :

Yield of sugarcane in Q/ha.

Years	S_1	S_2	S_3	S_4	Sig.	G.M.	S.E./plot
1961	2084·8	2109·3	1838·3	2037·0	N.S.	2017·3	247·6
1962	1074·9	1141·2	982·7	1129·3	N.S.	1082·0	142·7
Pooled	1579·8	1625·2	1410·5	1583·1	—	1549·6	—

Crop :- Sugarcane. **Ref :- T.N. 62(155), 63(212), 64(217).**

Site :- Central Sugarcane Res. Stn.,
Cuddalore. **Type :- 'M'.**

Object :—To study the suitable method of phosphate application to Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Sugarcane. (b) Sugarcane. (c) 168 Kg/ha. of N as A/S+125 Q/ha. of compost for 64(217) ; N.A. for others. (ii) Claye for 64(217) ; Sandy loam for others. (iii) 1.4.1962 ; 3.4.1963 ; 2.4.1964. (iv) (a) 2 ploughings, harrowing and forming trenches. (b) Planting setts by hand pressing. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1 (v) As per treatmants. (vi) Co.—419. (vii) Irrigated. (viii) Earthing. weediug and propping. (ix) 104 cm., 127 cm., 103 cm. (x) 31.3.1963 ; 30.3.1964 ; 27.3.1965.

2. TREATMENTS :

8 manurial treatments : T_0=Control, T_1=125 Q/ha. of compost as basal dressing, T_2=56 Kg/ha. of P_2O_5 as basal dressing, $T_3=T_1+T_2$, T_4=125 Q/ha. of compost digested with 56 Kg/ha. of P_2O_5, T_5=56 Kg/ha. of N+56 Kg/ha; of P_2O_5 as basal dressing, T_6=56 Kg/ha. of P_2O_5 as orthophosphoric acid sprayed on 45th and 100th days and T_7=Water sprayed on 45th and 100th days.

168 Kg/ha. of N as A/S was applied in 2 doses on 45th and 100th days to all the treatments except T_5 which received only 112 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) 10 m.×8 m. (b) 8 m.×6 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of early shoot borers. B.H.C. was sprayed once. (iii) Yield of sugarcane. (iv) (a) 1962—1964. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×Years interaction it absent. Results of individual years are presented under 5. Results.

5. RESULTS :

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig.	G.M.	S.E./plot
1962	1294·8	1141·6	1282·4	1226·9	1186·1	1194·7	1278·7	1255·3	N.S.	1232 6	35·3
1963	1239·2	1115·7	1205·8	1095·9	1354·1	1312·1	1336·8	1283·7	N.S.	1242·9	151.0
1964	763·5	847·6	827·8	1102·1	999·5	1009·4	1048·9	795·7	N.S.	924·3	119·9
Pooled	1099 1	1034·9	1105·3	1141·6	1179·9	1172 0	1221·4	1111·5	—	1133·2	—

Crop :- Sugarcane. **Ref :- T.N. 61(116), 62(156), 63(213).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :— To study the effect of N, P and K on the yield, quality and uptake of nutrients in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.-Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Cuddalore. (iii) 16.4.1961 ; 13.4.1962 ; 14.4.1963. (iv) (a) 3 ploughings, 2 harrowings and trashing. (b) Planting of setts by hand pressing. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) Nil. (vi) Co-419. (vii) Irrigated. (viii) Weedings, earthing up and propping. (ix) 84 cm., 103 cm., 106 cm. (x) 1.4.62. 3.4.1963 ; 5.4.1964.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 2 levels of doses : S_1=Single and S_2=Double dose.

(2) 5 doses of fertilizers : M_1=112 Kg/ha. of N, $M_2=M_1+56$ Kg/ha. of P_2O_5, $M_3=M_1+112$ Kg/ha. of K_2O, M_4=56 Kg/ha. of P_2O_5+112 Kg/ha. of K_2O, and $M_5=M_1+56$ Kg/ha. of P_2O_5+112 Kg/ha. of K_2O.

N was applled as A/S in two equal doses at 2nd and 4th months. P_2O_5 as Super in single dose at planting and K_2O as Mur. Pot. in three equal doses at planting, 2nd and 4th month.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) 100 m.×10 m. (iii) 2. (iv) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4, GENERAL :

(i) Good. (ii) Attack of early shoot borer for which B.H.C. was sprayed twice. (iii) Yield of cane. (iv) (a) 1961—1963. (b) No. (c) Results of combined analysis given under 5. (v) (b) N.A. (b) Nil. (vi) Nil. (vii) Since one of error variances is not available Treatments×years interaction is taken as error for testing treatment differences.

5. RESULTS :

(i) 972·6 Q/ha. (ii) 133·0 Q/ha. (based on 18 d.f, made up of various components of Treatments×years interaction). (iii) Main effects of S and M are highly significant (iv) Av. yield of cane in Q/ha.

	M_1	M_2	M_3	M_4	M_5	Mean
S_1	1009·9	1012·3	931·2	542·4	934·4	885·9
S_2	1154·4	1116·5	1130·9	632·2	1262·3	1059·3
Mean	1081·7	1064·4	1031·0	587·3	1098·4	972·6

C.D. for S marginal means=101·9 Q/ha.
C.D. for M marginal means=161·3 Q/ha.

Years	M_1	M_2	M_3	M_4	M_5	Sig.
1961	1186·1	1097·1	983·4	350·9	1099·6	N.S.
1962	1128·6	1103·9	1137·9	782·0	1116·3	N.S.
1963	930·4	992·1	971·7	628·8	1079·2	*
Pooled	1081·7	1064·3	1031·0	587·2	1098·3	**

Years	S_1	S_2	Sig.	G.M.	S.E./plot
1961	833·7	1053·1	**	943·4	N.A.
1962	949·8	1157·7	**	1053·8	114·3
1963	874·0	966·9	*	920·4	145·3
Pooled	885·8	1059·2	**	972·5	133·0

Crop :- Sugarcane. **Ref :- T.N. 64(164).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :— To study the effect of varying doses of N as straight and in combinations with organic nitrogen on a along term basis.

1. BASAL CONDITIONS :

(i) (a) Sugarcane follow Sugarcane. (b) Sugarcane. (c) As per treatments. (ii) River alluvium-Sandy loam. (iii) 19.3.1964. (iv) (a) 2 ploughings with iron plough working junior hoe and opening trenches with victory plough. (b) Planting setts along furrowing. (c) 37000 there budded setts/ha. (d) 100 cm. between rows. (e) 2. (v) As per treatments. (vi) Co-449 (Mid season). (vii) Irrigated. (viii) 3 weedings, 2 digging, trashing, propping partial and final earthing up. (ix) 107 cm. (x) 8.3.1965.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 63 (154) on page 374.

5. RESULTS :

(i) 1290·1 Q/ha. (ii) (a) 99·9 Q/ha. (b) 215·7 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of Sugarcane in Q/ha.

	N_1	N_2	N_3	S_1	S_2	K_0	K_1	P_0	P_1	Mean
C_0	1287·8	1328·7	1323·0	1288·2	1338·1	1297·8	1328·5	1329·8	1296·6	1313·2
C_1	1223·4	1343·9	1233·9	1280·9	1253·2	1246·2	1287·9	1292·6	1241·5	1267·1
Mean	1255·6	1336·3	1278·5	1284·5	1295·7	1272·0	1308·2	1311·2	1269·0	1290·1
P_0	1258·1	1368·5	1307·0	1320·5	1301·8	1282·6	1339·8			
P_1	1253·1	1304·1	1249·9	1248·6	1289·5	1261·5	1276·6			
K_0	1283·5	1306·2	1226·4	1295·0	1249·0					
K_1	1227·6	1366·4	1330·5	1274·0	1342·4					
S_1	1247·9	1372·3	1233·4							
S_2	1263·3	1300·2	1323·5							

Crop :- Sugarcane (*Main*). **Ref :- T.N. 61(73).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :— To study the effect of application of nitrogeneous fertilizer through foliar spray as compared to soil application on the yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane and Paddy. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) River alluvium Sandy loam. (iii) 2 ploughings with tractor. Working junior hoe, opening trenches with victory plough. (b) Trench method of planting. (c) 37000 three budded setts/ha. (d) 100 cm. between rows. (e) 1. (v) As per treatments. (vi) Co-419 (late). (vii) Irrigated. (viii) 3 weedings, 2 diggings, trashing, propping, partial and final earthing up. (ix) 121 cm. (x) 15.4.1962.

2. TREATMENTS :

10 manurial treatments ; M_0=Control, M_1=84 Kg/ha. of N as foliar spray, M_2=168 Kg/ha. of N as foliar spray, M_3=56 Kg/ha. of N as soil application, M_4=56 Kg/ha. as soil application +56 Kg/ha. of N as foliar application. M_5=56 Kg/ha. of N as soil application+ 112 Kg/ha. of N as foliar application, M_6=112 Kg/ha. of N as soil application, M_7=112 Kg/ha. of N as soil application+28 Kg/ha. of N as foliar application, M_8=112 Kg/ha. of N as foliar application+56 Kg/ha. of N as soil application, and M_9=68 Kg/ha. of N as soil application.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 10 m.×7 m. (b) 8 m.×5 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Lodging of cane in all the plots was noticed during Oct. 1961. (ii) Nil. (iii) Yield and quality of juice. (iv) (a) 1961-63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 955·9 Q/ha. (ii) 224·6 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	303·9	801 9	1041·0	659·8	1136·7
	M_5	M_6	M_7	M_8	M_9
	1170·7	981·6	1102·7	1109·5	1251·5

C.D.=317·6 Q/ha.

Crop :- Sugarcane. **Ref :- T.N. 62(107).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :—To study the effect of application of Nitrogenous fertilizers through foliar spray as compared to soil application in respect to yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) (a) Clay loam. (b) N.A. (iii)5.4.1962. (iv) (a) 2 ploughings and 1 harrowing with tractor opening trenches with victory plough (b) Trench methoh of planting. (c) 37000 three budded setts/ha. (d) 360 cm. between rows. (e) 1. (v) As per treatments. (vi) Co-419. (vi) Irrigated. (viii) 3 weedings, 2 digging, trashing propping pratial and final earthing up. (ix) 119 cm. (x) 6.3.1963.

2. TREATMENTS :

Same as in expt. no. 61 (73) on page 381.

3. DESIGN ;

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 12 m.×10 cm. (b) 10 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil (iii) Yield and juice quality. (iv) (a) 1961-63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 835·0 Q/ha. (ii) 100·3 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9
Av. yield	430·0	728·2	826·2	577·4	930·0	972·0	1033·7	1058·5	976·9	817·1

C.D.=142·0 Q/ha.

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(132).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'M'.**

Object :—To study the effect of application of Nitrogeneous fertilizers through foliar application as compared to soil application in respect of juice quality and yield of Canes.

BASAL CONDITIONS :

(i) (a) Paddy—follow—Sugarcane. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) (a) River alluvium—Sandy loam. (b) N.A. (iii) 12.4.63. (iv) (a) 2 ploughings with tractor, working with junior hoe opening trenches with Victory plough. (b) Trench method of planting. (c) 37000 three budded setts/ha. (d) 100 cm. between rows. (e) 1. (v) As per treatments. (vi) Co.—419 (late). (vii) Irrigated. (viii) 3 weedings, 2 digging, trashing, propping partial and final earthing up. (ix) 132 cm. (x) 20.3.64.

2. TREATMENTS :

Same as in expt. no. 61(73) on page 381.

3. DESIGN :

(i) R.B.D. (ii) (a) 10, (b) N.A. (iii) 4. (iv) (a) 12·4 m.×7 m. (b) 10 m.×5 m. (v) 120 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Lodging was noticed in all the plots during October 63 due to cyclone. (ii) Nil. (iii) Yield of Sugarcane and quality at harvest. (iv) (a) 1961—63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 755·5Q/ha. (ii) 161·4 Q/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	389·9	482·9	613·3	683·0	962·7	630·6	878·2	927·2	1001·3	985·5

C.D.=228·3 Q/ha.

Crop :- Sugarcane. **Ref :- T.N. 62(40), 63(45), 64(54).**

Site :- Sugarcane Res. Stn., Gudiattam. **Type :- 'M'.**

Object :—To stuuy the response of Sugarcane to N. P and K in respect of yield and juice quality.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Paddy—G.M.—Sugarcane. (b) *Sunhemp* for 62(40); Paddy of 63(45); Sugarcane for 64(54). (c) Nil for 62(40); 5605 Kg/ha. of G.M.+168 Kg/ha. of Super as basal dressing+168 Kg/ha. of A/S as top dressing for 63(45); 224 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio for 64(54). (ii) Sandy loam. (iii) 17.4.62; 13.4.63; 31.3.64. (iv) (a) 3 ploughings with victory plough and passing *patti* for levelling. (b) Planting in trenches. (c) 37605 setts (3 budded)/ha. (d) 100 cm. between rows. (e) Nil. (v) Nil. (vi) Co.—449. (vii)Irrigated. (viii) 2 weedings+2 mummuthy diggings. (ix) 96 cm. ; 87 cm.; 111 cm. (x) 11.4.63 ; 29.4.64 ; 25.3.65.

2. TREATMENTS :

8 manurial treatments : M_1=168 Kg/ha. of N, $M_2=M_1+168$ Kg/ha. of K_2O, $M_3=M_1+84$ Kg/ha. of P_2O_5, $M_4=M_1+84$ Kg/ha. of P_2O_5+168 Kg/ha. of K_3O, M_5=224 Kg/ha. of N, $M_6=M_5+224$ Kg/ha. of K_2O, $M_7=M_5+112$ Kg/ha. of P_2O_5 and $M_8=M_5+112$ Kg/ha. of P_5O_5+224 Kg/ha. of K_2O.

N applied as A/S in two equal doses 45 and 90 days after planting, K_2O as Mur. Pot. in three equal doses at planting, 45 and 90 days after planting. P_2O_5 as Super applied as basal dose prior to planting 15 cm. below the soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 40 m.×20 m. (iii) 3. (iv) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of early shoot borer and top borer was noticed. Spraying of endrin was taken up. (iii) Yield of Sugarcane. (iv) (a) 1962—64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) Cuddalore. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments× years interaction is absent.

5. RESULTS :

(i) 1015·0 Q/ha. (ii) 111·8 Q/ha. (based on 56 d.f. made up of pooled Error+Treatments×years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of cane in Q/ha.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
Av. yield	931·7	960·3	1029·0	992·7	951·7	1028·3	1047·3	1179·0

C.D.=105·7 Q/ha.

Years	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
1962	1316	1317	1449	1382	1332	1317	1479	1509
1963	654	644	738	766	773	818	828	978
1964	825	920	900	830	750	950	835	1050
Pooled	931	960	1029	992	951	1028	1047	1179

Years	Significance	G.M.	S.E./plot
1962	N.S.	1387·6	141·0
1963	*	775·0	98·1
1964	*	882·5	91·2
Pooled	**	1015·0	111·8

Crop :- Sugarcane (*Main*). **Ref :- T.N. 60(26).**

Site :- Sugarcane Res. Stn., Gudiyatham. **Type :- 'M'.**

Object :—To study the response of Sugarcane to phosphate manuring with special reference to mode and time of application of phosphate manure.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy—*Sunhemp*. (c) Nil. (ii) Sandy loam. (iii) 11.3.60. (iv) (a) 3 weedings and 5 to 6 ploughings. (b) N.A. (c) 37066, 3 budded setts/ha. (d) 5 links between cane rows. (e) Nil. (v) B.D. of 10 ton/ac. of F.Y.M. and top dressing of 200 lb. 'N' in the ratio of inorganic to organic 2 : 1 as A/S and G.N.C. (vi) Co.—419 (late). (vii) Irrigated. (viii) 3 weedings, 2 Mumithy diggings. Final earthings up once, partial earthing up once, trashing once. trash twist propping once. (ix) 99·7 cm. (x) 20.3.61.

2. TREATMENTS :

All combinations of (1). (2) and (3)+a control

(1) 2 levels of P_2O_5 : $P_1=84{\cdot}1$ and $P_2=168{\cdot}2$ Kg/ha.
(2) 2 times of application of P_2O_5 : $T_1=\frac{1}{2}$ at planting$+\frac{1}{2}$ at earthing up and T_2=Full dose at planting.
(3) 2 methods of application of P_2O_5 : M_1=By normal method and M_2=By placement 15 cm. below the soil.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 10 m.×12 m. (b) 10 m.×10 m. (v) 100 cm. on either side. (vi) Yes.

4. GENERAL :

(i) The crop was stunted due to water scarcity. (ii) Early shoot borer and top borer on mild scale-spraying with D.D.T. was taken up. The smut whips were removed. (iii) No. (iv) (a) 1958—60. (b) No. (c) Nil. (v) (a) Cuddalore. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 696·9 Q/ha. (ii) 222·5 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of Sugarcane in Q/ha.

Control=737·8 Q/ha.

	P_1	P_2	M_1	M_2	Mean
T_1	641·4	616·5	629·4	628·5	628·9
T_2	786·3	723·0	736·0	773·2	754·6
Mean	713·8	669·8	682·7	700 9	691·8
M_1	736·7	628·7			
M_2	691·0	710·8			

Crop :- Sugarcane. **Ref :- T.N. 65(49).**

Site :- S.R.S.S. Sirujamani. **Type :- 'M'.**

Object :—To find out the effect of different doses of N alone and in combinations with phosphate and Potash on the yield and quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Paddy. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 14 2.65. (iv) (a) Ploughing. (b) In furrows. (c) 22500 two budded setts/a.c. (d) 1 m. (e) 1. (v) Nil. (vi) Co.—419. (vii) Irrigated. (viii) Weedings. (ix) 21·5 cm. (x) 15.2.66.

2, TREATMENTS :

All combinations of (1), (2) and (3)

(1) 4 levels of N as A/S and G.N.C. in the ratio of 2 : 1 or basis *i.e.* : N_1=150, N_2=200, N_3=250, N_4= 300 lbs/ac.

(2) 2 levels of P is Super : P_0=0, P_1=100 lbs/ac.
(3) 2 levels of K as Potash : K_0=0, K_1=100 lbs/ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) 20 m.×24 m. (iii) 4. (iv) (a) 10·0 m.×12·0 m. (b) 8·0 m.×10·0 m. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination, tillers etc. (iv) (a) 1965—67. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 796·9 Q/ha. (ii) 102·4 Q/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of cane in Q/ha.

	N_1	N_2	N_3	N_4	K_0	K_1	Mean
P_0	709·2	715·4	853·4	846·9	756·9	805·5	781·2
P_1	666·2	827·2	839·2	918·1	806·3	819·1	812·7
Mean	687·7	771·3	846·2	882·5	781·6	812·3	796·9
K_0	671·5	761·1	849·1	844·8			
K_1	703·9	781·5	843·5	920·2			

C.D for N marginal means=73·0 Q/ha

Crop :- Sugarcane.

Ref. :- T.N. 62, 64, 65 (S.F.T.) for Pondicherry ; 62, 63, 64 (S.F.T.) for S. Arcot ; 63 (S.F.T.) for Coimbatore and Salem ; 65 (S.F.T.) for Trichy.

Site :- (District) : Pondicherry, S. Arcot, Coimbatore, Salem and Trichy.

Type :- 'M'.

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients

1. BASAL CONDITIONS :

(i) N.A. (ii) Crystal alluvium ; Deltaic alluvium ; Red and black ; Red loamy ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure)
N_1 =15 Kg/ha. of N
N_2 =30 Kg/ha. of N
P_1 =30 Kg/ha. of P_2O_5
N_1P_1 =15 Kg/ha. of N+30 Kg/ha. of P_2O_5
N_2P_1 =30 Kg/ha. of N+30 Kg/ha. of P_2O_5
N_2P_2 =30 Kg/ha. of N+60 Kg/ha. of P_2O_5
$N_2P_2K_1$ =30 Kg/ha. of N+60 Kg/ha. of P_2O_5+30 Kg/ha of K_2O
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type—C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 [1963—N.A.] for Pondicherry ; 1962 to 1964 for S. Arcot ; 1965—only for Trichy ; 1963 to 1964 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Pondicherry

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	2273	4316	2570	4217	6095	7215	8681	1072·3

Control yield=111030 Kg/ha. ; No. of trials=6.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	4250	6520	7380	8000	15170	9190	18870	824·0

Control yield=101450 Kg/ha. ; No. of trials=6.

65 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	7533	11400	4433	9133	15633	17900	20266	2663·6

Control yield=101166 Kg/ha. ; No. of trials=6.

S. Arcot

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	8172	13695	6652	11845	23864	27035	32304	2190·3

Control yield=61561 Kg/ha. ; No. of trials=9.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	1826	3942	4340	5945	5487	4810	20354	3371·0

Control yield=117247 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	1317	5271	10213	13178	15484	21085	—30969	28904·6

Control yield=164074 Kg/ha. ; No. of trials=3.

Coimbatore

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	5095	7976	—425	4670	9913	—17751	17114	8536·5

Control yield=93936 Kg/ha. ; No. of trials=3.

Salem

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	1713	7973	1383	9290	9620	15287	36043	6423·4

Control yield=84277 Kg/ha. ; No. of trials=3.

Trichy

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	73900	93500	72600	71400	72800	92400	94200	39029·8

Control yield=106700 Kg/ha. ; No. of trials=2.

Crop :- Sugarcane. **Ref. :- T.N. 63 (S.F.T.) for Salem ; 65 (S.F.T.) for Trichy ; 62, 63, 64(S.F.T.) for S. Arcot.**

Site :- (District) : Salem, Trichy and S. Arcot. **Type : 'M'.**

Object :—Type :A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem ; Deltaic alluvium for S. Arcot and Red sandy for Trichy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments
O =Control (no manure).
N_1 =15 Kg/ha. of N.
P_1 =30 Kg/ha. of P_2O_5.
P_2 =60 Kg/ha. of P_2O_5.
N_1P_1 =15 Kg/ha. of N+30 Kg/ha. of P_2O_5.
N_1P_2 =15 Kg/ha. of N+60 Kg/ha. of P_2O_5.
N_2P_2 =30 Kg/ha. of N+60 Kg/ha. of P_2O_5.
$N_2P_2K_2$=30 Kg/ha. of N+60 Kg/ha. of P_2O_5+60 Kg/ha. K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 on page 386.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only for Trichy, 1962 to 1964 for S. Arcot and 1963 to 1964 for Coimbatore and Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	2965	0	2174	10378	9884	21151	29652	6946·7

Control yield=74130 Kg/ha. ; No. of trials=2.

S. Arcot

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	14011	8408	12485	19693	17170	26128	33190	7444·8

Control yield=55660 Kg/ha. ; No. of trials=9.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	2339	7976	10956	8590	9407	10763	18894	4060·0

Control yield=115800 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	5930	12519	15484	19109	22405	20993	118801	2496·2

Control yield=157814 Kg/ha. ; No. of trials=3.

Trichy

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	14466	—733	7466	1933	17600	15466	63666	13876·0

Control yield=144399 Kg/ha. ; No. of trials=3.

Crop :- Sugarcane

Ref. :- T.N. 63 (S.F.T.) for Coimbatore ; 62, 63, 64(S.F.T.) for S. Arcot and 65 (S.F.T.) for Trichy.

Site :- (District) : Coimbatore, Salem, S. Arcot and Trichy.

Type :- 'M'.

Object :—Type : A_3. To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITINOS:

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem ; Deltaic alluvium for S. Arcot and Red sandy for Trichy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments

O =Control (no manure).

N_1 =15 Kg/ha. of N.

K_1 =30 Kg/ha. of K_2O.

K_2 =60 Kg/ha. of K_2O.

N_1K_1 =15 Kg/ha. of N+30 Kg/ha. of K_2O.

N_1K_2 =15 Kg/ha. of N+60 Kg/ha. of K_2O.

N_2K_2 =30 Kg/ha. of N+60 Kg/ha. of K_2O.

$N_1P_1K_1$ =15 Kg/ha. of N+30 Kg/ha. of P_2O_5+30 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 on page 386.

4. GENERAL :

(i) to (iii) N A. (iv) (a) 1962 to 1964 for S. Arcot ; 1963 to 1964 for Coimbatore and Salem ; 1965 only for Trichy. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

63(SF.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	6755	2935	5455	12075	11673	22407	27803	2085·7

Control yield=94787 Kg/ha. ; No. of trials=3.

S. Arcot

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	5191	1406	7400	7584	12491	9370	16461	4562·0

Control yield=60906 Kg/ha. ; No. of trials=9.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	—316	7147	13229	8872	9951	14972	25901	5004·0

Control yield=118332 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	—12190	—9225	—4942	—3953	2635	5600	11531	6101·3

Control yield=172311 Kg/ha. ; No. of trials=3.

Trichy

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	37100	25500	21200	30500	17800	22000	56400	12812·3

Control yield=104300 Kg/ha. ; No. of trials=2.

———

Crop :-Sugarcane. **Ref :- T.N. 60(S.F.T).**

Site :- (District) : South Arcot. **Type :- 'M'.**

Object :—Type A :—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red soil. (iii) to (x) N.A.

2. TREATMENTS :

o =Control (no manure)
n =196·1 Kg/ha. of N as A/S
p =89·7 Kg/ha. of P_2O_5 as Super.
k =89·7 Kg/ha. of K_2O as Mur. Pot.
np =196·1 Kg/ha. of N as A/S+89·7 Kg/ha. of P_2O_5 as Super.
nk =196 1 Kg/ha. of N as A/S+89·7 Kg/ha. of K_2O as Mur. Pot.
pk =89·7 Kg/ha. of P_2O_5 as Super+89·7 Kg/ha. of K_2O as Mur. Pot.
npk =196·1 Kg/ha. of N as A/S+89·7 Kg/ha. of P_2O_5 as Super+89·7 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the four zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960—only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

60(S.F.T.)

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in Kg/ha.	159·8	70·8	44·1	37·8	24·9	57·1	12·4	15·2	20·9

Control yield=648·4 Q/ha. ; No. of trials=6.

Crop :- Sugarcane. **Ref :- T.N. 61(S.F.T.).**

Site :- (District) : Salem. **Type :- 'M'.**

Object :— Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red soil. (iii) to (x) N.A.

2. TREATMENTS :

o =Control (no manure).
n =196·1 Kg/ha. of N.
p =89·7 Kg/ha. of P_2O_5.
k =89·7 Kg/ha. of K_2O.
np =196·1 Kg/ha. of N+89·7 Kg/ha. of P_2O_5.
nk =196·1 Kg/ha. of N+89·7 Kg/ha. of K_2O.
pk =89·7 Kg/ha. of P_2O_5+89·7 Kg/ha. of K_2O.
npk =196·1 Kg/ha. of N+89·7 Kg/ha. of P_2O_5+89·7 Kg/ha. of K_2O.

3. DESIGN :

Same as in type A (60) on page 390.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of sugarcane in Q/ha.	82·4	199·1	84·8	87·3	—21·8	—28·8	39·1	93·4	52·8

Control mean=1272·1 Q/ha. ; No. of trials=5.

Crop :- Sugarcane. **Ref :- T.N. 60(S.F.T.).**

Site :-(District) : South Arcot. **Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red soil. (iii) to (x) N.A.

2. TREATMENTS :

o =Control (no manure)
n_1 =196·1 Kg/ha. of N as A/S.
n_2 =392·2 Kg/ha. of N as A/S.
n_1' =196·1 Kg/ha. of N as Urea.
n_2' =392·2 Kg/ha. of N as Urea.
n_1'' =196·1 Kg/ha. of N as A/S/N.
n_2'' =392·2 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in type A (60) on page 390.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatment	o	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in Q/ha.	704·6	795·4	884·8	868·4	980·3	964·8	1098·0

G.M.=899·5 Q/ha. ; S.E./mean=22·9 Kg/ha., ; No. of trials=4.

Crop :- Sugarcane. **Ref :- T.N. 64(137).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'MV'.**

Object :—To study the effect of application of Nitrogenous Fertilezers through foliar application as compared to soil application in respect of juice quality and yield of Canes.

1. BASAL CONDITIONS :—

(i) (a) Sugarcane — Paddy. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) (a) River alluvium-Sandy loam. (b) N.A. (iii) 30 4.64. (iv) (a) 2 ploughings with tractor, working with junior hoe, opening trenches with victory plough. (b) Trench method of planting (c) 37000 setts(three budded)/ha. (d) 100 cm. between rows. (e) —. (v) and (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings, 2 digging, trashings, propping partial and final earthing up. (ix) 107 cm. (x) 12.5.65.

2. TREATMENTS :

Main-plot treatments :
2 varieties : V_1=Co-419 and V_2=Co-449.

Sub-plot treatments :
6 manurial treatments : M_1=280 Kg/ha. of N as soil application, M_2=140 Kg/ha. of N as soil application+70 Kg/ha. of N as foliar application, M_3=140 Kg/ha. of N as soil application+35 Kg/ha. of N as foliar application, M_4=70 Kg/ha. of N as soil application+105 Kg/ha. of N as foliar application, M_5=112 Kg/ha. of N as soil application+56 Kg/ha. of N as foliar application and M_6=56 Kg/ha. of N as soil application+56 Kg/ha. of N as foliar application.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 12 m.×8 m. (b) 10 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of sugarcane and juice quality. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 810·7 Q/ha. (ii) (a) 72·7 Q/ha. (b) 231·8 Q/ha. (iii) Main effect of V is significant. (iv) Av. yield of sugarcane in Q/ha.

	M_1	M_2	M_3	M_4	M_5	M_6	Mean
V_1	891·4	789·5	1007·6	938·4	1000·8	712·3	890·0
V_2	729·0	827·8	756·2	868·0	772·8	434·9	731·4
Mean	810·2	808·7	881·9	903·2	886·8	573·6	801·7

C.D. for V marginal means=66·8 Q/ha.

Crop :- Sugarcane (*Adsali*). **Ref :- 60(98), 60(97), 61(80).**
Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'MV'.**

Object :—To compare the efficacy of basal application of N at planting as compared to normal dressing for *adsali* crop.

1. BASAL CONDITIONS :

(i) (a) G.M.-sugarcane for 60(98) ; G.M.-sugarcane Ragi for 60(97) ; Groundnut-*Sesbania*-Sugarcane for 61(80): (b) *Sunhemp* for 60(98) ; G.M. for 60(97) ; *sesbania* for 61(80). (c) Nil. (ii) Sandy loam. (iii) 1.9.59 ; 6.9.60 ; 3.8.61. (iv) (a) 2 ploughings and harrowing with tractor and operating trenches. (b) Planting setts along furrows. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) Nil for 60(98) ; 5600 Kg/ha. of G.M.+280 Kg/ha. of N as A/S for 60(97) ; 280Kg/ha. of N as A/S and G.N.C. in the ratio 2 : 1 for 61(80). (vi) As per treatments. (vii) Irrigated. (viii) 2 diggings+3 weedings and earthing up. (ix) 264 cm.. 295 cm., 180 cm. (x) 4.12.60 ; 15 to 21.12.61 ; 23.12.62.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=Co-527, V_2=Co-658 and V_3=Co-785.

Sub-plot treatments :

2 methods of application of N at 280 Kg/ha. : T_1=In 3 doses : 100 Kg. each at 2nd and 4th month and 80 Kg. in the 6th month of planting and T_2=In 4 doses : 30 Kg. at the time of planting, 90 Kg. each at 2nd and 4th month and 70 Kg. in the 6th month of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 12 m.× 10 m. (b) 10 m.× 8 m. (v) 100 cm.× 100 cm. (vi) Yes.

4 GENERAL :

(i) Good; lodging in August for 60(98) and 60(97). (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1959-1961. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Both the error variances are homogeneous and main-plot Treatments × years interaction is present and Sub-plot Treatments × years interaction is absent.

5. RESULTS :

(i) 1318·6 Q/ha. (ii) (a) 234·5 Q/ha. (based on 4 d.f. made up of Treatments×years interaction). (b) 163·5 Q/ha. (based on 51 d.f. made up of various components of Treatments×years interaction and pooled error). (iii) Interaction T×V is highly significant. (iv) Av. yield of cane in Q/ha.

	V_1	V_2	V_3	Mean
T_1	1390·7	1407·9	1201·9	1333·5
T_2	1250·5	1417·9	1242·7	1303·7
Mean	1320·6	1412·9	1222·3	1318·6

C.D. for T means at the same level of V=109·5 Q/ha.
C.D. for V means at the same level of T=120·36 Q/ha.

Years	V_1	V_2	V_3	Sig.
1960	1247·9	1209·6	1128·5	N.S.
1960	1422·2	1526 4	1284·4	N.S.
1961	1291·8	1502·9	1254·1	*
Pooled	1320·6	1412·9	1222·3	N.S.

Years	T_1	T_2	Sig.	G.M.	S.E./plot	
1960	1211·9	1178·7	N.S.	1195 3	(a) 152·4	(b) 168·5
1960	1425·0	1397·0	N.S.	1411·0	(a) 99·4	(b) 190·9
1961	1363·8	1335·3	N.S.	1349·6	(a) 217·5	(b) 157·8
Pooled	1333·5	1303·6	N.S.	1318·6	234·5	163·5

Crop :- Sugarcane. **Ref :- T.N. 64(231), 65(48).**

Site :- Sugarcane Research Station, Sirngamani. **Type :- 'MV'.**

Object :—To fix up the optimum dose of Nitrogen for the two standard varieties of this track in combination in the yield and juice qualities.

1. BASAL CONDITIONS :

(ii) (a) Paddy-Sugarcane. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 20.2.64 ; 23.1.65. (iv) (a) Ploughing, (b) In furrows. (c) 56,000 two budded setts/ha. (d) 1 mm. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Earthing up and weeding. (ix) N.A. (x) 6.2.65 1st. week of Feb. 65.

2 TREATMENTS :

Main-plot treatments :

2 varieties : V_1=Co-419 and V_2=Co-449.

Sub-plot treatments :

6 levels of N : N_0=No manure, N_1=181 Kg/ha. N_2=242 Kg/ha., N_3=302 Kg/ha., N_4=363 Kg/ha., N_5=423 Kg/ha.

N applied in 2 equal doses as A/S and G.N.C. in the ratio 2 : 1 on N basis as the 15th and 90th days after ploughing.

3. DESIGNS:

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plots (b) 30 m.×32 m. (iii) 4. (iv) (a) 16 m.×5 m. (b) 14 m.×3 m. (v) 1 m. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination percentage, tiller count and yield of grain. (iv) (a) 1964-65. (b) Yes. (c) No. (v) N.A. (vi) Nil. (vii) Sub-plot error variances are heterogeneous, results of individual years are presented under 5. Results.

5. RESULTS :

64(231)

(i) 890·1 Q/ha. (ii) (a) 330·2 Q/ha. (b) 97·2 Q/ha. (iii) Main effects of V and N are highly significant and (V×N) interaction is significant. (iv) Av. yield of cane in Q/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
V_1	231·3	471·8	669·0	865·3	911·2	926.6	679·2
V_2	429·5	973·6	1182·3	1275·7	1369·5	1375·8	1101·1
Mean	330·4	722·7	925·6	1070·5	1140·3	1151·2	890·1

C.D. for V marginal means =303·3
C.D. for N marginal means =99·2
C.D. for N means at the same level of V=140·4
C.D. for V means at the same level of N=682·4

65(48)

(i) 382·0 Q/ha. (ii) (a) 131·4 Q/ha. (b) 45·9 Q/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of cane in Q/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
V_1	155·9	308·9	376·4	488·8	535·2	557·8	403·8
V_2	147·7	306·0	349·4	429·5	449·7	478·9	360·2
Mean	151·8	307·4	362·9	459·1	492·4	518·3	382·0

C.D. for N marginal means=46·9

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(205), 64(206).**

Site :- Sugarcane Res. Stn., Sirugamani. **Type :- 'MV'.**

Object :—To find out the optimum dose of N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.-Paddy-Sugarcane. (b) Paddy. (c) N.A. for 63, 1235 Kg. of *sesbania*, 273 Kg. of Super phosphate, 237 Kg. of A/S/ha. (ii) Sandy loam. (iii) 21.3.63, 20.2.64. (iv) (a) Digging with spades, forming ridges and furrows. (b) Spreading two budded setts in furrows and covering with soil. (c) 56,000 two budded setts/ha. (d) 100 cm. between cane rows and 10 cm. between setts. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 4 to 5 weedings. (ix) 81 cm. in 1963, 85 cm. in 64. (x) 21.2.64, 6.3.65.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=CO-419 and V_2=CO-449.

Sub-plot treatments :

6 levels of N : $N_0=0$, $N_1=168$, $N_2=224$, $N_3=280$, $N_4=336$ and $N_5=392$ Kg/ha.

N was applied in all cases as A/S and groundnut cake in the ratio 2 : 1 on nitrogen basis as top dressing in two equal doses, 45 and 90 days after planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication and 6 sub-plots/main plot. (b) 34·4 m.×31·6 m. (iii) 4. (iv) (a) 10 m.×8 m. for 63, 16 m.×5 m. for 64. (b) 8 m.×6 m. for 63, 14 m.×3 m. for 64. (v) 100 cm.× 100 cm.

4. GENERAL:

(i) Yes. (ii) Negligible. (iii) Yield of cane. (iv) (a) 1963—1965. (b) No. (c) Presented under 5. Results. (v) and (vi) Nil. (vii) Sub-plot error variances are heterogeneous. Results of individual years are presented under 5. Results.

5. RESULTS :

63(205)

(i) 1033·0 Q/ha. (ii) (a) 148·1 Q/ha. (b) 98·7 Q/ha. (iii) Main effects of N and interaction V×N are highly significant. (iv) Av. yield of sugarcane in Q/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
V_1	485·1	1120·0	968·6	1173·4	1184·7	1343·1	1045·8
V_2	460·4	857·1	1002·9	1185·8	1339·0	1275·8	1020·2
Mean	472·8	988·6	985·8	1179·6	1261·8	1309·4	1033·0

C.D. for N marginal means=100·9 Q/ha.
C.D. for the V means at the same level of N=183·7 Q/ha.
C.D. for the N means at the same level of V=142·8 Q/ha.

64(206)

(i) 461·6 Q/ha. (ii) (a) 170·6 Q/ha. (b) 49·9 Q/ha. (iii) Main effects of V and interaction V×N are significant and main effect of N is highly significant. (iv) Av. yield of sugarcane in Q/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
V_1	120·1	241·7	347·2	449·0	472·9	480·1	351·8
V_2	222·9	505·3	613·5	662·0	710·7	714·1	571·4
Mean	171·5	373·5	480·4	555·5	591·8	597·1	461·6

C.D. for N marginal means =51·5 Q/ha.
C.D. for V marginal means =156·6 Q/ha.
C.D. for N means at the same level of V=72·1 Q/ha.
C.D. for V means at the same level of N=167·3 Q/ha.

Crop :- Sugarcane. **Ref :- T.N. 61(75), 62(108), 63(135).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'C'.**

Object :—To study the deterioration in seed and the need for change of seed material at frequent intervals for Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (b) G.M. for 63 (135) ; *Sunhemp* for others. (c) Nil. (ii) Sandy loam for 61 (75) ; Loamy for 62(108) ; River alluvium; Clay loam for 63(135). (iii) 21.3.61 30.3.62; 23.3.63. (iv) (a) 2 ploughings, harrowing and opening trenches. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) —. (v) 250 Q/ha. of F.Y.M. for 61(75); 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio applied in 2 equal doses on the 45th and 90th day of planting for others. (vi) Co.—419 (late). (vii) Irrigated. (viii) 3 weedings, 2 diggings, trashing, propping and partial and final earthing up. (ix) 84 cm.; 119 cm.; 140 cm. (x) 26.3.62; 22.3.63; 22 to 24.3.64.

2. TREATMENTS :

2 types of seed : S_1=Coimbatore seed material (periodically changed) and S_2=Farm seed material (unchanged).

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 8 for 61(75); 6 for others. (iv) (a) 12 m.×10 m. for 63(135); 15 m.×10 m. for others. (b) 10 m.×8 m. for 63(135); 13 m.×8 m. for others. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Crop for 63(135) lodged completely on 21.10.63 due to cyclone wind. (ii) Nil. (iii) Yield of Sugarcane. (iv) (a) 1961—63. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Raw data and S.E. were not available for 62(108). Treatments×years interaction is taken as error.

5. RESULTS :

(i) 1330·2 Q/ha. (ii) 167·4 Q/ha (based on 2 d.f. made up of Treatments×years interaction). (iii) Treatment difference is not significant. (iv) Av. yield of cane in Q/ha.

Treatment	S_1	S_2
Av. yield	1369·7	1290·7

Years	S_1	S_2	Sig.	G.M.	S.E./plot
1961	1727·5	1707·3	N.S.	1717·4	149·1
1962	1480·2	1450·6	N.S.	1465·4	N.A.
1963	901·5	714·1	N.S.	807·8	134·3
Pooled	1369·7	1290·6	N.S.	1330·2	167·4

Crop :- Sugarcane. **Ref :- T.N. 62(116), 63(141).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'C'.**

Object :—To study the effect of different seed rates on the yield and quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G M.—Sugarcane. (b) *Sunhemp*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Cuddalore. (iii) 12.1.62; 23.12.62. (iv) (a) 2 ploughings+1 harrowing with tractor and opening trenches with victory plough. (b) Planting setts along furrows. (c) As per treatments. (d) N.A. (e) —. (v) 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio applied in 2 equal doses on 45th and 90th day of planting. (vi) Co.—658 (early) for 62(116); Co.—419 (early) for 63(141). (vii) Irrigated. (viii) 3 weedings, 2 diggings, trashing, propping. (ix) 105 cm.; 155 cm. (x) 5.1.63; 30.12.63 to 3.1.64.

2. TREATMENTS :

Main-plot treatments :

2 types of setts : T_1=2 budded and T_2=3 budded setts.

Sub-plot treatments :

5 seed rates : S_1=88800, S_2=111000, S_3=133200, S_4=155400 and S_5=177600 buds/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 10 m.×9 m. for 62(116); 9 m.×9 m. for 63(141). (b) 8 m.×7 m. for 62(116); 9 m.×7 m. for 63(141). (v) 100 cm.×100 cm. for 62(116); 100 cm. on either side for 63(141). (vi) Yes.

4. GENERAL :

(i) Good. Crop lodged due to cyclone on 20.10 63 for 63(141). (ii) Nil. (iii) Yield of Sugarcane. (iv) (a) 1961—63 (modified in 62). (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Main-plot and sub-plot error variances are homogeneous and Main-plot Tteatments ×years interaction is present and sub-plot Treatments×years interaction is absent.

5. RESULTS :

(i) 1137·3 Q/ha. (ii) (a) 314·9 Q/ha. (based on 1 d.f. made up of Treatments×years interaction). (b) 166·7 Q/ha. (based on 56 d.f. made up of pooled error and various components of Treatments×years interaction). (iii) Main effect of S alone is highly significant. (iv) Av. yield of cane in Q/ha.

	S_1	S_2	S_3	S_4	S_5	Mean
T_1	971·0	1016·9	1078·2	1137·8	1199·1	1080·6
T_2	1026·6	1192·9	1178·6	1259·0	1312·9	1194·0
Mean	998·8	1104·9	1128·4	1198·4	1256·0	1137·3

C.D. for S marginal means=118·0 Q/ha.

Years	S_1	S_2	S_3	S_4	S_5	Sig.
1962	938·5	1114·0	1161·2	1271·4	1348·6	**
1963	1059·2	1095·9	1095·6	1125·2	1163·2	N.S.
Pooled	998·8	1104·9	1128·4	1198·3	1255·9	**

Years	T_1	T_2	Sig.	G.M.	S.E./plot Main	S.E./plot Sub plot
1962	1180·5	1152.9	N.S.	1166·7	(a) 162·3	(b) 137·7
1963	980·7	1234·9	*	1107·8	(a) 238·8	(b) 180·9
Pooled	1080·6	1193·9	N.S.	1137·2	(a) 314·9	(b) 166·7

* * *

Crop :- Sugarcane. **Ref :- T.N. 61(82).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'C'.**

Object :—To study the effect of increasing seed rate on the yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane. (b) Paddy. (c) 33·6 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 19.4.61. (iv) (a) 2 ploughings with tractor, 1 harrowing with tractor and opening trenches with Victory plough (b) planting setts along furrows. (c) and (d) As per treatments. (e) —. (v) 280 Kg/ha. of N in 2 equal doses on the 45th and 90th day of planting in the form of A/S+G.N.C. in 2 : 1 ratio. (vi) Co.—658 (early). (vii) Irrigated. (viii) 3 weedings, 2 diggings, trashing, propping and partial and final earthing up. (ix) 100 cm. (x) 15.3.62.

2. TREATMENTS :

Main-plot treatments :

5 seed rates : R_1=88800, R_2=111000, R_3=133200, R_4=155400 and R_5=177600 buds/ha.

Sub-plot treatments :

2 types of setts : S_1=2 budded sett and S_2=3 budded setts.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 10 m.×9 m. (b) 8 m.×7 m. (v) 100 cm.× 100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of Sugarcane and quality of juice. (iv) (a) 1961—63 (modified in 62). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1339·6 Q/ha. (ii) (a) 256·8 Q/ha. (b) 126·5 Q/ha. (iii) R×S interaction is significant. (iv) Av. yield of Sugarcane in Q/ha.

	R_1	R_2	R_3	R_4	R_5	Mean
S_1	1326·8	1552·8	1345·8	1341·4	1308·7	1375·1
S_2	1322·9	1302·6	1314·9	1277·4	1302·6	1304·1
Mean	1324·9	1427·7	1330·4	1309·4	1305·6	1339·6

C.D. for S marginal means at the same level of R=190·7 Q/ha
C.D. for R marginal means at the same level of S =309·1 Q/ha.

Crop :- Sugarcane. **Ref :- T.N. 65(19).**

Site :- Sugarcane Res. Stn., Cuddalore. **Type :- 'C'.**

Object :—To study the effect of streak virus on the yield and quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (b) *Sunhemp*. (c) Nil. (ii) Sandy loam. (iii) 15.5.65.(iv) (a) 2 ploughings with tractor, 1 ploughing each with Cooper and Junior hoe. (b) Trench method of planting. (c) 37,000 three budded setts/ha. (d) 1 m. between rows. (e) —. (v) 25 m. tonnes/ha. compost+280 Kg/ha. of N applied as A/S and Groundnut cake in the ratio 2 : 1 in two equal doses on 45 days after planting and 4th month. (vi) Co.—658. (vii) Irrigated from well at 10 days interval excepting rainy days. (viii) Hoeing, weeding, earthing up and trashing. (ix) 130 cm. (x) 26.5.66.

2. TREATMENTS :

Setts collected from : T_1=Streak affected crop and T_2= Healthy crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) 20 m.×12 cm. (iii) 4. (iv) (a) 12 m.×10 m. (b) 10 m.×8 m. (v) 2 m.×2 m. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield and juice quality. (iv) (a) 1965 continuing. (b) and (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 773·9 Q/ha. (ii) 105·2 Q/ha. (iii) Treatment difference is not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_1	T_2
Av. yield	736·2	811·6

Crop :- Sugarcane (*Mid season*). **Ref :- T.N. 60(92).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'C'.**

Object :— To study the effect of trashing and propping on the yield and quality of juice in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy. (b) Paddy. (c) 33 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 7.3.60. (iv) (a) Ploughing with tractor and forming trenches with Victory plough. (b) Planting setts in furrows. (c) 37000 three budded setts/ha. (d) 100 cm. between rows. (e) —. (v) Nil. (vi) Co-449. (vii) Irrigated (viii) 3 weedings, 2 diggings, partail and timing earthing up. (ix) 174 cm. (x) 2 to 9.2.1961.

2. TREATMENTS :

4 cultural treatments : T_0=Control, T_1=Trashing alone, T_2=Trashing and propping by trash twist method and T_3=Trashing and propping by trash twist supported by bamboos.

Trashing was done twice in the 5th and 7th month of planting and propping was done only once in the 8th month.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iv) (a) 16 m.×10 m. (b) 14 cm.×8 m. (v) 100 cm.×100 cm. (v) Yes.

4. GENERAL :

(i) Lodging was noticed during Oct.-Nov. 1960. (ii) Spraying with Endrin was done against early shot borer. (iii) Yield of Sugarcane, population count, tiller counts etc. (iv) (a) 1958-1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1222·0 Q/ha. (ii) N.A. (iii) Treatment differences are not signfiicant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	1161·4	1250·4	1158·9	1317·1

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(46), 64(55).**

Site :- Sugarcane Res. Stn., Gudiyatham. **Type :- 'C'.**

Object :— To study the effect of defoliation on different dates on the flowering of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy-G.M.-Sugarcane. (b) G.M. (c) 5605 Kg/ha. of green leaf+168 Kg/ha. of super as basal dressing+168 Kg/ha. of A/S as top dressing for 63. Nil for 64. (ii) Sandy loam. (iii) 15.3.63, 4.2.1964. (iv) (a) 3 ploughings with iron plough and working Patti for levelling. (b) Planting in trenches. (c) 37605, three budded setts/ha. (d) 100 cm. between rows. (e) —. (v) 250 Q/ha. of F.Y.M. (vi) Co-419. (vii) Irrigated. (viii) 2 weedings and 2 mummthy digging. (ix) 87 cm. in 1963, 111 cm. in 1964. (x) 10.4.64, 10.4.65.

2. TREATMENTS :

8 different dates of defoliation : D_0=Control (No defoliation), D_1=20th July, D_2=27th July, D_3=3rd Aug., D_4=10th Aug., D_5=17th Aug., D_6=24th Aug. and D_7=31st Aug.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 40 m.×20 m. (iii) 4. (iv) (a) 10 m.×10 m. (b) 10 m.×8 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Endrin was sprayed against early shoot borer and top borer. (iii) Yield of Sugarcane. (iv) (a) 1963-64 (available), (b) No. (c) Given under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 1058·6 Q/ha. (ii) 132·4 Q/ha. (based on 49 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are significant. (iv) Av. yield of cane in Q/ha.

Treatment	D_0	D_1	D_2	D_3	D_4	D_5	D_6	D_7
Av. yield	1106.0	978·0	973·0	1153·5	1083·0	1018·5	1136·0	1022·5

C.D.=133·5 Kg/ha.

Years	D_0	D_1	D_2	D_3	D_4	D_5	D_6	D_7	Sig.	G.M.	S.E./plot
1963	932·0	845·0	787·0	909·0	903·0	777·0	933·0	908·0	N.S.	874·2	124·7
1964	1280·0	1111·0	1159·0	1398·0	1263·0	1260·0	1339·0	1137·0	N.S.	1243·0	139·9
Pooled	1106·0	978·0	973·0	1153·5	1083·0	1018·5	1136·0	1022·5	*	1058·6	132·4

Crop :- Sugarcane. **Ref :- T.N. 61(111), 62(152).**

Site :- Sugarcane Res. Sub-Stn., Sirugamani. **Type :- 'C'.**

Object :—To observe whether there is any deterioration in the seed material by using the same seed material year after year.

1. BASAL CONDITIONS :

(i) (a) G.M.-Paddy-Sugarcane. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 18.3.1961, 23.3.1962.(iv) (a) 3 ploughings with country and iron ploughs, one digging with mummuthy, forming ridges and furrows. (b) Spreading setts in furrows and covering with earth. (c) 37000 setts (3 budded)/ha. (d) 100 cm.×10 cm, (e)—. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings+2 mummuthy diggings+2 trashing, one partial earthing up and one final earthing up. (ix) 39 cm., 100 cm. (x) 27.2.62, 26.4.63.

2. TREATMENTS :

2 seed materials : T_1=Local farm seed and T_2=Co-419 seed.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) 24 m. × 10 m. (iii) 8. (iv) (a) 12 m. × 10 m. (b) 10 m. × 8 m. (v) 100 cm. × 100 cm. (vii) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of early shoot borer was controlled by spraying 0·02% endrin. (iii) Yield of Sugarcane. (iv) (a) 1961-62. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

(i) 618·7 Q/ha. (ii) 142·1 Q/ha. (based on 15 d.f. made up of pooled error and Treatments × years interaction). (iii) Treatment difference is not significant. (iv) Av. yield of cane in Q/ha.

Treatment	T_1	T_2
Av. yield	595·6	641·8

Years	T_1	T_2	Sig .	G.M,	S.E./plot
1961	654·8	759·6	N.S.	707·2	134·2
1962	636·5	524·1	N.S.	530·3	146·0
Pooled	595·6	641·8	N.S.	6187·	142·1

Crop :- Sugarcane.
Site :- Central Sugarcane Res. Stn.,
Cuddalore.

Ref :- T.N. 60(91), 61(71), 62(100).
Type :- 'CV'.

Object :—To evaluate the comparative efficacy of Hawain method of cultivation over local method for Sugarcane.

1. BASAL CONDTIONS :

(i) (a) Nil for 62(100) ; Paddy – G.M.—Sugarcane for others. (b) *Sunhemp.* (c) Nil. (ii) Sandy loam. (iii) 23.5.1960 ; 3.5.1961 ; 27.12.1961. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) As per treatments. (e) —. (v) Nil for 60(91) ; 280 Kg/ha. of N as A/S and G.N.C. in the ratio 2 : 1 in three doses on 45th, 90th and 150th days of planting. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings for 61(71) ; N.A. for others. (ix) 170 cm., 124 cm., 105 cm. (x) April, 1961 ; 22.4.1962 ; 3.1.1963.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=Co.—527, V_2=Co.—658 and V_3=Co.—785.

Sub-plot treatments :

2 methods of cultivation : T_1=Local method and T_2=Hawain method.

In local method : 20 to 25 cm. deep furrows, 100 cm. between rows, earthing up and propping etc. In Hawain method : 40 to 45 cm. deep furrows, 120 cm. between rows and no propping or earthing up.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main plots replication, 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 12 m. × 10 m. (b) 10 m. × 8 m. for T_1 and 9·6 m. × 8 m. for T_2 plots. (v) 100 cm. × 100 cm. for T_1 and 120 cm. × 100 cm. for T_2 (vi) Yes.

4. GENERAL :

(i) Good. Crop for 60(91) lodged in November. (ii) Attack of early shoot borers for 60(91). D.D.T. 5% was sprayed ; No incidence for others. (iii) Yield of sugarcane. (iv) (a) 1960—62. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS:

(i) 1242·1 Q/ha. (ii) (a) 168·1 Q/ha. (based on 22 d.f. made up of pooled error and Treatments × years interation). (b) 135·6 Q/ha. (based on 33 d.f. made up of pooled error and various components of Treatments × years interaction). (iii) Main effect of T alone is highly significant. (iv) Av. yield of cane in Q/ha.

	V_1	V_2	V_3	Mean
T_1	1176·8	1174·0	1179·9	1176·9
T_2	1293·2	1352·6	1276·1	1307·3
Mean	1235·0	1263·3	1282·0	1242·1

C.D. for T marginal means=65·2 Q/ha.

Years	V_1	V_2	V_3	Sig.	T_1	T_2	Sig.	G.M.	S.E./Plot	
									Main plot	Sub plot
1960	1180·9	1125·9	1263·7	N.S.	1133·8	1246·5	N.S.	1190·2	147·5	144·2
1961	1292·4	1440·6	1306·0	N.S.	1317·9	1374·7	N.S.	1346·3	161·2	122·2
1962	1231·8	1223·2	1114·4	N.S.	1079·1	1300·6	*	1189·8	128·6	123·5
Pooled	1235·0	1263·2	1228·0	N.S.	1176·9	1307·2	**	1242·1	168·1	135.6

Crop :- Sugarcane. **Ref :- T.N. 60(100), 61(81).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'CV'.**

Object :—To study the response of varieties to Hawain method of cultivation as compared to local method for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Sugarcane for 60(100) ; G.M.—Sugarcane for 61(81). (b) Sugarcane for 60(100) ; *Sesbania* for 61(81). (c) 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio. (ii) Sandy loam. (iii) 13.8.1960; 9.8.1961. (iv) (a) 2 ploughings+1 harrowing with tractor and opening trenches withmanual labour. (b) Planting setts along furrows. (c) 3700 setts (3 budded)/ha. (d) As per treatments. (e) 1. (v) 100 Kg/ha. of N each on the 45th and 90th days and 80 Kg/ha. of N on the 150th days of planting as A/S and G.N.C. in 2 : 1 ratio. (vi) As per treatments. (vii) Irrigated. (viii) 2 diggings+3 weedings+partial and final earthing up. (ix) 126 cm., 197 cm. (x) 12 to 16.12.1961 ; 25.12.1962.

2. TREATMENTS:

Main-plot treatments :

3 varieties : V_1=Co.—527, V_2=Co.—658 and V_3=Co.—785.

Sub-plot treatments :

2 methods of planting : M_1=Local method and M_2=Hawain method.

In case of local method : Planting in shallow furrows of 20 cm. deep earthing up with spacing 100 cm. between rows. In case of Hawain method : planting of setts at 150 cm. apart in 45 cm. deep trenches.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plot/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 12 m. × 10 m. (b) 10 m. × 8 m. for M_1 and 9 m. × 8 m. for M_2 plots. (v) 100 cm. × 100 cm. for M_1 and 150 cm. × 100 cm. for M_2 plots. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of Sugarcane. (iv) (a) 1959 – 61. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous.

5. RESULTS :

60(100)

(i) 13666 Q/ha. (ii) (a) 176·4 Q/ha. (b) 268·9 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	V_1	V_2	V_3	Mean
M_1	1483·3	1496·3	1410·7	1463·4
M_2	1259·9	1296.3	1253·0	1269·7
Mean	1371·6	1396·3	1331·8	1366.6

61(81)

(i) 846·2 Q/ha. (ii) (a) 321·8 Q/ha. (b) 95·7 Q/ha. (iii) Main effect of M alone is significant. (iv) Av. yield of cane in Q/ha.

	V_1	V_2	V_3	Mean
M_1	863·4	768·4	701·8	777·6
M_2	881·3	1034·8	828·1	914·7
Mean	827·4	901·6	764·6	846·2

C.D. for M marginal means = 88·4Q/ha.

Crop :- Sugarcane (*Main*). **Ref :- T.N. 61(26), 62(38), 63(43).**

Site :- Sugarcane Res. Stn., Gudiyattam. **Type :- 'IC'.**

Object :—To study the effect of application of trash *mulch* between cane rows on the conservation of soil moisture and control of weed growth.

1. BASAL CONDITIONS :

(i) (a) Nil for 62(38) ; Sugarcane-Paddy-G.M. (or fodder) for others. (b) *Jowar* (fodder) for 61(26) ; Paddy for others. (c) Nil for 61(26) ; 5605 Kg/ha. of G.L. + 84 Kg/ha. of Super + 33·6 Kg/ha. of N as A/S as top dressing for 63(38) ; 5605 Kg/ha. of G.M. + 168 Kg/ha. of Super as basal dressing + 168 Kg/ha. of A/S as top dressing for 63(43). (ii) Sandy loam. (iii) 17, 18.3.61 ; 11.3.62 ; 19.2.63. (iv) (a) 3 ploughings and working *patti* for levelling. (b) Planting in trenches. (c) 37065 setts (3 budded)/ha. (d) 100 cm. between rows. (e) —. (v) 250 Q/ha. of F.Y.M. (vi) CO-419. (vii) and (viii) As per treatments. (ix) 88 cm., 99 cm., 87 cm. (x) 24 to 30.3.62 ; 20 to 23.2.63 ; 28.2.64.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of irrigation : I_1=Once in 8 days and I_2=Once in 16 days.

(2) 3 methods of application of trash *mulch* : M_0=Control (no *mulch*), M_1=Applied on the 50th day onwards and removed on the 150 day and M_2=Applied on the 50th day onwards and incorporated on the 150th day.

2 weedings and 1 digging done for all plots with mulch treament. 2 weedings and 2 diggings done for plots with no mulch treatment.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) 28 m.×27 m. (iii) 4. (iv) (a) 14 m.×9 m. (b) 12 m.×9 m. (v) 100 cm. on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of early shoot borer and top borer. Endrin was sprayed. (iii) Yield of sugarcane. (iv) (a) 1961-1963. (b) No. (c) Results of combined analysis given under 5. (v) (a) Cuddalore. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1198·8 Q/ha. (ii) 72·1 Q/ha. (based on 10 d.f. made up of various components of Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	M_0	M_1	M_2	Mean
I_1	1173·7	1236·3	1266·7	1225·6
I_2	1154·0	1172·0	1190·3	1172·1
Mean	1163·8	1204·2	1228·5	1198·8

Years	M_0	M_1	M_2	Sig.	I_1	I_2	Sig.	G.M.	S.E./plot
1961	1147	1184	1164	N.S.	1165	1164	N.S.	1165·0	39·0
1062	1329	1319	1326	N.S.	1337	1312	N.S.	1325·0	105·0
1963	1016	1110	1196	**	1174	1041	**	1107·0	90·0
Pooled	1164	1204	1229	N.S.	1225	1172	N.S.	1199·0	72·1

Crop :- Sugarcane (*Main*).
Site :- Central Sugarcane Res. Stn.,
Cuddalore.

Ref :- T.N. 60(96), 61(79), 62(115).
Type:- 'IC'.

Object :—To study the effect of trash mulch between cane rows in conserving soil moisture for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-*Sunhemp* for 60(96) ; Sugareane-*Ragi*-G.M. for 61(179) ; Sugarcane-G.M. for 62(115). (b) *Sunhemp* for 60(96) ; *Daincha* for others. (c) Nil. (ii) Sandy loam. (iii) 17.4.60 ; 1.3.61 ; 13.2.62. (iv) (a) 2 ploughings, harrowing and operating trenches. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) 5600 Kg/ha. of G.M. incorporated+280 Kg/ha. of N top dressed in three doses on 45th, 90th and 150th day of planting for 60(96) ; 5600 Kg/ha. of G.M. incorporated+280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio in two equal doses on 45th and 90th day of planting for 61(79) ; 280 Kg./ha. of N as A/S and G.N.C. in 2 : 1 ratio in 3doses on 45th, 90th and 150th day of planting for 62(115). (vi) Co-785. (vii) and (viii) As per treatments. (ix) 173 cm., 121 cm., 119 cm. (x) 25.2.61 ; 31.12.61 to 2.1.62 ; 23.1.63.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 irrigational treatments : I_1=Irrigation once in 5 days and I_2=Irrigation once in 10 days till the break of monsoon.

(2) 3 cultural treatments : C_1=2 diggings+3 weedings, C_2=Trash *mulch* applied on 45th day and C_3= Trash *mulch* applied on 45th day and incorporated in *situ* at the time of final earthing up.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 12 m.×10 m. (b) 8 m.×8 m. (v) 200 cm.× 100 cm. (vi) Yes.

4 GENERAL :

(i) Good. Crops for 60(96) and 61(79) lodged in the month of November. (ii) Endrin 0·1% was sprayed against shoot borer for 60(96) and 61(79) ; No incidence for 62(115). (iii) Yield of sugarcane. (iv) (a) 1960-1962. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1192·7 Q/ha. (ii) 208·7 Q/ha. (based on 10 d.f. made up of various components of Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	C_1	C_2	C_3	Mean
I_1	1189·6	1245·1	1250·8	1228·5
I_2	1114·2	1176·5	1179·8	1156·8
Mean	1151·9	1210·8	1215·3	1192·7

Years	I_1	I_2	Sig.	C_1	C_2	C_3	Sig.	G.M.	S.E./plot
1960	1130·9	1096·7	N.S.	1043·1	1149·9	1148·2	N.S.	1113·7	159·1
1961	1422.9	1256·0	**	1237·9	1391·5	1389·0	**	1339·5	118·2
1962	1131·6	1117·8	N.S.	1174·7	1091·0	1108·7	N.S.	1124·8	109·1
Pooled	1228·5	1156·8	N.S.	1151·9	1210·8	1215·3	N.S.	1192·7	208·7

Crop :- Sugarcane.

Site :- Central Sugarcane Res. Stn.,
Cuddalore.

Ref :- T.N. 60(94), 61(77), 62(114).

Type :- 'D'.

Object :—To compare the efficacy of cultural operations and weedicides in controlling weeds and to study the comparative economics for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy-G.M. for 60(94) ; 61(77) ; Sugarcane-G.M. for 62(114). (b) Fallow for 60(94) ; *Sunhemp* for 61(77) ; *Dhaincha* for 62(114). (c) Nil. (ii) Clay loam for 62(114) ; Loamy for others. (iii) 22, 23.3.60 ; 20.3.61 ; 25.4.62. (iv) (a) 2 ploughings with tractor+opening trenches with victory plough. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) 250 Q/ha. of F.Y.M. as basal dressing+280 Kg/ha. of N for 60(94) ; 5600 Kg/ha. of G.M.+280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio for 61(77) ; 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio for 62(114). N was applied in 2 equal doses on 45th and 90th day of planting. (vi) Co-419 (late). (vii) Irrigated. (viii) As per treatments. (ix) 173 cm., 122 cm., 127 cm. (x) 25.3.61 ; 20.3.62 ; 11.4.63.

2. TREATMENTS :

8 weedicidal treatments : $T_0=3$ weedings and 2 diggings, $T_1=3{\cdot}4$ Kg/ha. of 2, 4-D sodium salt as spray in 1120 litres of water once on the 5th day of planting, $T_2=T_1$ applied twice on the 5th and 25th day of planting, T_3=Pentachlorophenol 12·5% at 22 litres in 1000 litres/ha. on the 5th day of planting, $T_4=T_3$ applied twice on the 5th and 25th day of planting, $T_5=T_1+T_3$ sprayed on the 5th day after planting, $T_6=T_1+T_3$ sprayed twice on the 5th and 25th day after planting and T_7=Trash mulching on the 45th day of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 6. (iv) (a) 10 m.×9 m. (b) 8 m.×7 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Lodging noticed during November for 60(94) and 61(77). (ii) Spraying with endrin was done against shoot borer for 60(94) and 61(77). No incidence for 62(114). (iii) Yield of sugarcane. (iv) (a) 1960-1962. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1237·5 Q/ha. (ii) 259·9 Q/ha. (based on 14 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of cane in Q/ha.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	1278·8	1227·7	1235·9	1154·2	1240·8	1177·6	1239·8	1345·1

Years	T_0	T_1	T_2	T_3	T_4	T_5
1960	1131·8	1104·6	1094·7	1057·6	1156·5	1161·4
1961	1516·7	1586·1	1530·9	1487·6	1525·3	1577·6
1962	1187·8	992·3	1082·2	917·3	1040·5	793·0
Pooled	1278·7	1227·6	1235·9	1154·1	1240·7	1177·3

Years	T_6	T_7	Sig.	G.M.	S.E./plot
1960	1112·0	1097·2	N.S.	1114·5	N.A.
1961	1441·2	1601·4	N.S.	1533·4	200·5
1962	1166·3	1336·8	N.S.	1064·6	290·2
Pooled	1239·8	1345·1	N.S,	1237·5	259·9

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(140).**

Site :- Central Sugarcane Res. Stn., Cuddalore. Type :- 'D'.

Object :—To study the relative economics and efficacy of cultural operations with the application of weedicides in controlling weeds.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Sugarcane. (b) Sugarcane. (c) 280 Kg/ha. of N as A/S+G.N.C. (ii) (a) River alluvium, sandy soil. (b) N.A. (iii) 8.6.63. (iv) (a) 2 ploughings with victory plough, workig junior hoe and opening trenches with victory plough. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) 280 Kg/ha. of N as A/S+G.N.C. in 2 : 1 ratio in 2 equal doses on 45th and 90th day. (vi) Co-419(late). (vii) Irrigated. (viii) As per treatments. (ix) 129 cm. (x) 20th to 23rd May' 64.

2. TREATMENTS :

12 weedicidal treatments : T_0=Control, T_1=2-4-D 1·12 Kg/ha. spraying on the 3rd day., T_2=2-4-D 1·12 Kg/ha. spraying on the 20th day, T_3=2-4-D 2·24 Kg/ha. spraying on the 3rd day, T_4=2-4-D 1·12 Kg/ha. spraying on the 3rd and 20th day, T_5=2-4-D 2·24 Kg/ha. spraying on the 3rd and 20th day, T_6=Tafazine 1·12 Kg/ha. spraying on 3rd day, T_6=Tafazine 2·24 Kg/ha. spraying on the 3rd day, T_8=2-4-D 1·12 Kg.+Tafazine 2·24 Kg/ha. spraying on the 3rd day, T_9=2-4-D 1·12 Kg+ Tafazine 2·24 Kg. spraying on the 3rd day and 2-4-D 1·12 Kg/ha. on the 20th day T_{10}=2-4-D 1·12 Kg/ha. on 3rd and 20th day and dowpon 2·24 Kg/ha. on 20th day, and T_{11}=Trash mulching before lift irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of sugarcane and quality of juice. (iv) (a) 1963-1964 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 778·6 Q/ha. (ii) 282·6 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	646·0	683·1	958·0	768·4	666·5	698·9
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	692·3	1032·1	685·4	899·7	583·0	1030·2

Crop :- Sugarcane (*Main*). **Ref :- T.N. 64(148).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To study the relative economics and efficacy of cultural operations with the application of weedicides in controlling Sugarcane weeds.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane. (b) *Sunhemp*. (c) Nil. (ii) Clay loam. (iii) N.A./17.4.64. (iv) (a) 2 ploughings with tractor and opening trenches with victory plough. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) 280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio. (vi) Co.—419. (vii) Irrigated. (viii) As per treatments. (ix) 105 cm. (x) 13.4 65.

2. TREATMENTS :

15 weedicidal treatments : T_0=Control, T_1=2-4-D 1·12 Kg/ha. of spraying on 3rd day, T_2=2-4-D 1·12 Kg/ha. of spraying on the 20th day, T_3=2-4-D 2·24 Kg/ha. of spraying on the 3rd day. T_4=2-4-D 1·12 Kg/ha. of spraying on the 3rd and 20th day, T_5= 2-4-D 2·24 Kg/ha. of spraying on the 3rd and 20th day, T_6=Tafazine 1·12 Kg/ha. on the 3rd day, T_7=Tafazine 2·24 Kg/ha. on the 3rd day, T_8=2-4-D 1·12 Kg/ha.+Tafazine 2·24 Kg/ha. on the 3rd day, T_9=2-4-D 1·12 Kg/ha.+Tafazine 2·24 Kg/ha. on 3rd day+2-4-D 1·12 Kg/ha. on the 3rd day, T_{10}=2-4-D 1·12 Kg/ha. on the 3rd and 20th day+Dowpon 2·24 Kg/ha. on the 20th day, T_{11}=2-4-D 2.24 Kg/ha. on the 3rd day and as and when necessary, T_{12}= Bladex C-5 litres/ha. on the 3rd day and as and when necessary, T_{13}= Trash mulching before lift irrigation and T_{14}=Trash mulching on the 45th day after giving one weeding and one digging.

3. DESIGN :

(i) R.B D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 10 m.×8 m. (b) 8 m.×6 m. (v) 100 cm.×100 cm. (v) Yes.

4· GENERAL :

(i) Good. (ii) Nil. (iii) Yield of Sugarcane and juice quality. (iv) (a) 1963—64 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 695·6 Q/ha. (ii) 212·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}
Av. yield	663·6	540·5	665·1	638·4	534·9	754·7	657·9	496·8	831·4	663·1	675·4	743·9	796·4	979·1	792·3

Crop :- Sugarcane (*Main*). **Ref :- T.N. 64(139).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To evolve a suitable control measure against Sugarcane borers.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Groundnut—*Ragi*. (b) *Ragi*. (c) 112 Kg/ha. of A/S. (ii) Sandy loam. (iii) 4.4.64. (iv) (a) 2 ploughings with tractor, harrowings, levelling with junior hoe; opening trenches with victory plough. (b) Trench method of planting. (c) 37000 setts (3 budded)/ha. (d) 100 cm. between rows. (e) 1. (v) 125 Q/ha. of compost. (vi) Co.—449 (Mid-season). (vii) Irrigated. (viii) 3 weedings, 2 diggings. trashing and propping partial and final earthing up. (ix) 110 cm. (x) 4 to 6th April'65.

2. TREATMENTS :

12 insecticidal treatments : T_0=Control, T_1=Endrin 0·04% spray, T_2=Endrin granules 1·12 Kg/ha. applied by broadcasting, T_3=Endrin 0·02% spray, T_4=Toxaphene 0·25% spray, T_5=Dipterex 0·2% spray, T_6=A/S 45 Kg/ha. of N+B.H.C. 10% dust at 22·4 Kg/ha., T_7=B.H.C. 10% dust at 22·4 Kg/ha., T_8=A/S alone at 45 Kg/ha. of N, T_9=Gamma B.H.C. at 1·12 Kg/ha., T_{10}=Trash mulching between rows and T_{11}=Trash mulching and Endrin 0·02% spray.

Three rounds of spraying were given commencing from the early signs of pest infection.
Soil application was completed at the time of planting.

A/S was applied as basal dresing 1120 litres/ha. of spraying fluid is used for all treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 10 m.×8 m. (b) 8 m.×6 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Lodging was noticed in Nov. (ii) As per treatments. (iii) Counts on the incidenee of shoot borer was recorded prior to and after each round of treatment. (iv) (a) 1960—64 (modified every year). (b) No. (c) Nil. (v) Nil. (vi) Cyclone in Nov. 64. (vii) Nil.

5. RESULTS :

(i) 1077·7 Q/ha. (ii) 157·8 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Av. yield	1152·1	1096·9	954·7	945·7	1115·1	944·7	1191·8	1133·1	1014·2	984·3	1240·2	1160·4

Crop :- Sugarcane. **Ref :- T.N. 63(134).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To study a suitable control measure against Sugarcane borers.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane. (b) *Sunhemp.* (c) Nil. (ii) Clay. (iii) 24.3.63. (iv) (a) 2 ploughings with tractor levelling with junior hoe, opening trenches with Victory plough. (b) Trench method of planting. (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e) —. (v) 125 Q/ha. of compost at tne time of ploughing. (vi) Co.—449. (vii) Irrigated. (viii) 3 weedings, 2 digging trashing propping and earthing up. (ix) 140 cm. (x) 18th to 21st Feb. 64.

2. TREATMENTS :

9 insecticidal treatments : T_0=Control, T_1=Endrin 0·04% spray, T_2=D.D.T. 0·25% spray, T_3=Toxaphene 25% E.C., 0·025% spray, T_4=Ryania 95% W.P. 0·25% spray, T_5= Gamma B.H.C. at 5·6 Kg/ha. spray at the time of planting. , T_6=A/S to supply 45 Kg/ha. of N+B.H.C. 22·4 Kg/ha. at planting, T_7=A/S to supply 45 Kg/ha. of N+Heptachlor dust at 22·4 Kg/ha. and T_8=A/S alone to supply 45 Kg/ha. of N at the time of planting.

Sprayings were given at tri-weekly intervals commencing the early sign of pest incidence in the field.

Fertilizers and chemicals were applied in the furrows and the soil worked up.
1120 litres/ha. of spraying fluid is used for all treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) (a) Good. Lodging was noticed in all plots in October due to cyclonic winds in Oct., 63. (ii) As per treatments. (iii) Counts on the incidence of shoot borer was recorded prior to and after each round of treatment and yield of Sugarcane. (iv) (a) 1960—64 (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1037·6 Q/ha. (ii) 276·5 Q/ha. (iii) Treatment differenees are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1031·7	1129·8	925·5	1091·5	1121·3	1103·5	1029·8	872·6	1032·8

Crop :- Sugarcane (*Main*). **Ref :- T.N. 61(74).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To evolve suitable control measure against early shoot borer and termites.

1. BASAL CONDITIONS :

(i) (a) G.M.—Paddy—Sugarcane—G.M.—Paddy. (b) Paddy. (c) 5600 Kg/ha. of green leaf+112 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Loamy. (iii) 3.4.61. (iv) (a) 2 tractor ploughings, harrowings, levelling with Buck scrapper, breaking clods with junior hoe. (b) Trench method of planting. (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e)—(v) 125 Q/ha. of compost applied before planting. (vi) Co.—449. (vii) Irrigated. (viii) 3 weedings, 1 partial and final earthing up, 2 mammuthy digging, trashing and propping. (ix) 124 cm. (x) 10th to 13th March, 62.

2. TREATMENTS :

9 insecticidal treatments : T_0=Control, T_1=Endrin 0·02% : 1 gm/litre of water, T_2=Pestox 0·25% : 2·5 gm/litre of water, T_3=D.D.T. (50% W.P.) 0.025% : 5 gm/litre of water, T_4=Basudin (0·01%) : 0·5 gm/litre of water, T_5=Aldrin (0·1%) : 2·5 gm/litre of water, T_6=Gamma B.H.C. 20% (E.C.) 0·2% : 2·5 gm/litre of water, T_7=Gamma B.H.C. 20% (E.C.) 5·6 Kg/ha. as soil application, and T_8=Sevin 95% W.P. 0·5% : 5 gm/litre of water.

Three rounds of spraying commencing from early signs of incidence were given. Soil application was made at the time of planting. 1120 litres/ha. of spraying fluid was used for all spraying treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. Lodged during the month of Nov./Dec. 61, due to heavy rains and cyclones. (ii) As per treatments. (iii) Pest counts were recorder after each spray and previous to each spray. (iv) (a) 1960—64 (modified every year not conducted in 1962). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1360·6 Q/ha. (ii) 149·1 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1338·6	1396·9	1448·3	1314·7	1303·1	1257·9	1306·6	1487·7	1391·2

Crop :- Sugarcane (*Main*). **Ref :- T.N. 60(93).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :— To study suitable control measures with modern insecticides against early shoot borer for the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M. (b) Fallow. (c) Nil. (ii) Clayey loam. (iii) 15.3.1960. (iv) (a) 2 ploughings with tractor and worked with junior hoe. (b) Trench method of planting and victory plough. (c) 37000, 3 budded setts/ha. (d) 100 cm. between rows. (e) 1. (v) 12·5 tons/ha. of compost at the time of planting. (vi) Co-449 (mid season). (vii) Irrigated. (viii) 3 weedings, 2 mammatty diggings, trashing, propping by trash twist and 2 earthing up. (ix) 181 cm. (x) 26th to 29th Dec., 1960.

2. TREATMENTS :

9 insecticidal treatments : I_0=Control, I_1=D.D.T. 0·25% spray, I_2=B.H.C. 0·5% spray, I_3=Endrin 0·1% spray, I_4=Foldol 0·05% spray, I_5=Aldrin 0·1% spray, I_6=Dieldrin 0·1% spray, I_7=Ryania 0·5% spray and I_8=Soil application of B.H.C. at 5·6 Kg/ha.

Three rounds of the insecticides were applied at the interval of 3 weeks commencing form the first sign of dead hearts in the field. Soil application was made at the time of planting. 1120 litres/ha. of spraying fluid is used in all spraying treatments.

3. DESIGN:

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 10 m.×10 m. (b) 8 m.×8 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. Crop lodged completely in Nov., 1960 due to heavy wind and rains. (ii) As per treatments. (iii) Pest counts were recorded prior to each round of spraying and 21 days after last round of spraying. (iv) (a) 1960-64 (modified every year, not conducted in 1962). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1319·3 Q/ha. (ii) 136·7 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in A/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8
Av. yield	1307·4	1263·7	1335·9	1332·5	1386·9	1395·4	1203·5	1293·9	1354·1

Crop :- Sugarcane. **Ref :- T.N. 61(72).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :— To determine the relative efficacy of different fungicides for the control of Pineapple disease on the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Follow-Sugarcane. (b) Sugarcane. (c) 280 Kg/ha. of N as A/S+G.N.C. in 2 : 1 ratio. (ii) Clay. (iii) 4.5.1961. (iv) (a) 2 ploughings with tractor, 1 with cooper. (b) Trench method of planting. (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e) —(v) 25 tons/ha. of F.Y.M. (vi) Co-419. (vii) Irrigated. (viii) Hoeing and weeding, earthing up, propping with trash twist. (ix) 122 cm. (x) 14.4.1962.

2. TREATMENTS :

10 fungicides : T_0=Control, T_1=Merculine 1·2 g.m./litre water, T_2=Hexasan 10 gm./litre of water, T_3=Cerenox 2·5 gm./litre of water, T_4=Thirum 2·5 gm./litre of water, T_5=Hexasan 2·5 gm./litre of water, T_6=Merculine 2·5 gm./litre of water, T_7=Aretan 2·5 gm./litre of water, T_8=Bordeaux Mixture 1% spray and T_9=Dipping the setts only in spore suspension.

1120 litres/ha. of spraying fluid is used.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 12 m.×4 m. (b) 10 m.×3 m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of Sugarcane and quality of juice. (iv) (a) 1961-contd (with changed treatments. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1275 7 Q/ha. (ii) 154·0 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1270·1	1349·2	1303·1	1325·3	1187·8	1263·6	1224·8	1312·2	1303·9	1216·6

Crop :- Sugarcane. **Ref :- T.N. 63(131).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :— To assess the efficacy of different fungicides forthe control of pineapple disease for the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M. (b) *Sesbania.* (c) Nil. (ii) Clay. (iii) 1.5.1963. (iv) (a) 2 ploughings with tractor, 1 each with cooper and junior hoe. (b) Trench method of planting. (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e)—(v) 250 Q/ha. of compost+280 Kg/ha. of N as A/S and G.N.C. in 2 : 1 ratio in two doses on the 1st 45 days and 4 months after planting. (vi) Co-419 (early). (vii) Irrigated. (viii) Hoeing, weeding, earthing up, trashing and propping with trash twist. (ix) 133 cm. (x) 18.4.1964.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Agrosan 2·5 gm./litre. T_2=Agallol 2·5 gm./litre, T_3=Aretan 2·5 gm./litre, T_4=Merculine 2·5 gm./litre, T_5=Merculine 5 gm./litre, T_6=Bordeaux mixture 1%, T_7=Bordeaux mixture 2%, T_8=Thiram 2·5 gm./litre and T_9=Cane setts dipping only in spore Suspension.

1120 litres/ha. of spraying fluid is used.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 12 m.×5 m. (b) 10 m.×3 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Partial lodging was noticed during the month of Oct., 1963. (ii) Stray incidence of yellow spot was seen in all the plots at the late stage of the crop. (iii) Yield of Sugarcane and juice quality. (iv) (a) 1961-contd (with modified treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 899·3 Q/ha. (ii) 145·2 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	906·1	855·0	895·4	872·3	886·3	954·7	879 7	1027·2	950·5	766·0

Crop :- Sugarcane (*Main*). **Ref :- T.N. 64(136).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To determine the comparative efficacy of different fungicides in the control of Pineapple disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-follow-paddy. (b) Paddy. (c) 100 Q/ha. of F.Y.M.+45 Kg/ha. of N as A/S. (ii) Clay. (iii) 25.3.64. (iv) (a) 2 ploughings with tractor, 1 each with Cooper and junior hoe (b) Trench method of planting (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e)— (v) 250 Q/ha. of compost+280 Kg/ha. of N as A/S and G.N.C. in the ratio 2 : 1 applied after 1½ months and 4 months of planting, (vi) Co-419. (vii) Irrigated. (viii) Hoeing and weeding, earthing up, trashing and propping. (ix) 102 cm. (x) 24.2.65.

2. TREATMENTS :

10 fungicides : T_0=Control, T_1=Aretan 2·5 gm./litre, T_2=Agrosan 5 gm/litre, T_3=Wet ceresan 5 gm/litre, T_5=Dithane 1·5 gm/litre, T_5=Bordeaux mixture 1%, T_6=Cupravit 5 gm/litre, T_7=Wettable Sulphur 6 gm/litre, T_8=Solbar 3% 30 gm/litre and T_9=Cane setts dipped in spore suspension and planted.

1120 litres/ha. of spraying fluid is used.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 12 m.×5 m. (b) 10 m,×3 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL:

(i) The crop lodged heavily in all the treatments during the month of November. (ii) Stray incidence of brown spot and yellow spot was seen in all treatments. (iii) Yield of sugarcane and juice quality. (iv) (a) 1961-contd (with modified treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1300·3 Q/ha. (ii) 134·4 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1280·9	1353·3	1282·5	1445·6	1205·9	1411·8	1312·2	1298·2	1174·6	1238·0

* * *

Crop :- Sugarcane. **Ref :- T.N. 62(106).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object : To assess the relative efficacy of different fungicides for the control of pineapple disease for the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (b) *Sesbania*. (c) Nil. (ii) Clay loam. (iii) 8.962. (iv) (a) 2 ploughings with tractor, 1 each with cooper and junior hoe. (b) Trench method of planting. (c) 37000, 3 budded setts/ha. (d) 100 cm. between rows. (e) 1. (v) 250 Q/ha. of F.Y.M.+280 Kg/ha. of N as A/S+G.N C. in 2 : 1 ratio. (vi) Co-419(early). (vii) Irrigated. (viii) Hoeing and weeding, earthing up, trashing and propping with trash twist. (ix) 127 cm. (x) 8.9.63.

2. TREATMENTS :

12 fungicidal treatments : T_6=Control, T_1=Merculine 5 gm/litre of water Spray, T_2=Hexasan 5 gm/litre of water spray, T_3=Cerenox 2·5 gm/litre of water spray, T_4=Merculine 2·5 gm/litre of water spray, T_5=Triam 5% spray, T_6=Bordeaux mixture 1% spray, T_7=Bordeaux mixture 2% spray, T_8=Aretan 0·5% spay, T_9=Wet ceresan 0·5%, T_{10}=Flit 4 of 0·5% saray and T_{11}=Dipping the setts only in spore suspension.

1120 litres/ha. of spraying fluid is used.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 12 m.×4 m. (b) 10 m.×3 m. (v) 100 cm.×50 cm. (vi) Yes.

4. GENERAL :

(i) Lodged in pockets during August, 1962. (ii) Nil. (iii) Yield of sugarcane and quality of juice. (iv) (a) 1961-contd (with changed treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1343·0 Q/ha. (ii) 245·6 Q/ha. (iii) Treatment diifferences are not significant. (iv) Av. yield of sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1205·1	1264·4	1333·6	1445·6	1429·9	1316·3
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	1294·0	1541·1	1254·5	1474·4	1345·9	1210·8

* * *

Crop :- Sugarcane. **Ref :- T.N. 64(138).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To evolve suitable control measures for top borer and inter mode borer by synthetic insecticides for the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M.-Paddy. (b) Paddy. (c) 45 Kg/ha. of N as A/S. (ii) Clayey. (iii) 18.5.64. (iv) (a) 2 ploughings with tractor working with junior hoe and opening trenches with victory plough. (b) Trench method of planting. (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e) —. (v) 20 Q/ha. of G L.+10 Q/ha. of gypsum+150 Kg/ha. of A/S. (vi) Co-419. (vii) Irrigated. (viii) 3 weedings and 2 diggings, trenching and propping and partial and final earthing up. (x) 27.4.65 to 2.5.65.

2. TREATMENTS :

10 Insecticidal treatments : T_0=Control, T_1=Endrin 20% E.C. 0·04% : 2 gm/litre of water, T_2=Gamma B.H C. 20% E.C. 0·05% : 2·5 gm/litre of water, T_3=Dimceron 100% E.C. 0·03% : 3 gm/litre of water, T_4=Metasystox 25% E.C. 0·1% : 1 gm/litre of water, T_5=Dipterex 0·2% : 2·5 gm/litre of water, T_6=Telodrin 0·03% : 2 gm/litre of water, T_7=D.D.T. 50% W.P. 0·25% : 5 gm/litre of water, T_8=Sevin 85% W.P. 0·25% : 2·5 gm/litre of water, and T_9=Trithion E.C. 0·06 % : 1·25 gm/litre of water.

Four rounds of sprayidg with the above were given at tri weekly intervals. 1120 litres/ha. of spraying fluid is used for all treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 10 m.×8 m. (b) 8 m.×6 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Counts of top borer and inter-node borer incidence were recorded and yield of sugarcane. (iv) (a) 1960-1964 (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 739·0 Q/ha. (ii) 158·8 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	837·1	779·4	736·7	645·1	670·3	745·4	630·1	843·8	719 2	783·0

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(133).**

Site :- Central Sugarcane Res. Stn., Cuddalore. **Type :- 'D'.**

Object :—To evolve suitable control measures against top borers and internode borer by synthetic insecticides for the Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) G.M.-Sugarcane. (b) *Sunhemp*. (c) Nil. (ii) Sandy loam. (iii) 15, 16.5.63. (iv) (a) 1 plhoughing and harrowing with tractor and 2 ploughings with junior hoe followed by cooper. (b) Trench method of planting (c) 37000, three budded setts/ha. (d) 100 cm. between rows. (e) —. (v) 125 Q/ha. of compost at the time of planting. (vi) Co-419. (vii) Irrigated. (viii) 4 weedings, 1 mammuty digging followed by partial earthing up, 2 trashing and propping. (ix) 140 cm. (x) 20 to22.4.64.

2. TREATMENTS :

10 Insecticidal treatments : T_0=Control, T_1=Endrin 20% E.C0 04%. : 2 gm/litre of water, T_2=Gamma B.H.C. 20% E.C. 0·05% : 2·5 gm/litre of water, T_3=Parathion 0·05% : 1 gm/litre of water, T_4=Metasy stok 25% E.C. 0·1% : 2·5 gm/litre of water, T_5= Depterex 0·2% : 2·5 gm/litre of water, T_6=Telodrin 0·03% : 2 gm/litre of water, T_7=D.D.T. 50% W.P.O. 0·25% : 5 gm/litre of water, T_8=Sevin 85% W.P.O. 0·25% : 2·5 gm/litre of water and T_9=Ryania 95% W.P. 0·25% : 2·5 grm/litre of water.

Four rounds of spraying with the above treatmants were given at tri-weekly intervals commencing from early sign of borer incidence. 1120 litres/ha. of spraying fluid is used for all treatments.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 10 m.×8 m. (b) 8 m.×6 m. (v) 100 cm.×'00 cm. (vi) Yes.

4. GENERAL :

(i) Good. Lodged badly in Nov., 1963 due to cyclone. (ii) As per treatments. (iii) Counts on top borer and internode borer incidence were recorded and yield of sugarcane. (iv) (a) 1960-1964 (modified every year), (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1096·5 Q/ha. (ii) 149·8 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	995·6	1141·8	933·9	1153·2	1256·1	1053·8	960·1	1156 3	1124·3	1190·2

Crop :- Sugarcane (*Main*). **Ref :- T.N. 62(39), 63(44).**

Site :- Sugarcane Res. Stn., Gudiyatham. **Type :- 'D'.**

Object :—To study the effects of different chemicals on the control of weeds against Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy-G.M. (b) G.M. (*sunhemp*) in 1962, Paddy in 1963. (c) Nil for 62, 5605 Kg/ha. of G.M +168 Kg/ha. of Super as basal dressing+168 Kg/ha. of A/S as top dressing for 63. (ii) Sandy loam. (iii) 24.3.62, 31.3.63. (iv) (a) 3 ploughings with iron plough and *patti* for levelling. (b) Planting in trenches. (c) 37065, three budded setts/ha. (d) 100 cm. between rows. (e) N.A. (v) 250 Q/ha. of F.Y.M. (vi) Co-419. (vii) Irrigated. (viii) N.A. (ix) 99 cm. in 62, 85 cm. in 63. (x) 21.3.63, 9.3.64.

2. TREATMENTS :

6 weedicidal treatments : T_1=No weedicide treatment. Removal of weeds by manual labour, T_2=Hedanol liquid 6·18 pints/ha. spraying on the 5th and 25th day after planting, T_3=Coronox 11·12 pints/ha. sprayed as in T_2, T_4=Feronoxone-2, 4D. sodium salt 2·8 Kg/ha. sprayed as in T_2, T_5=Tafapon 5·6 Kg/ha. on 5th day after planting, only one pre-emergence spray and T_6=Trash *mulch*, applied on tha 45th day after planting after giving one weeding and one mummuthy digging.

3. DESIGN :

(i) R.B D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 10 m.×8 m. for 62, 10 m.×6 m. for 63 (b) 10 m.×8 m. for 62 and 10 m.×4 m. for 63. (v) One row on either side.

4. GENERAL :

(i) Good in 62, satisfactory in 63. (ii) Incidence of early shoot borer and top borer was noticed. Endrin was sprayed. (iii) Cane yield. (iv) (a) 62-63. (b) No. (v) Cuddalore. (c) Presented under 5 Results. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

(i) 889·2 Q/ha. (ii) 111·0 Q/ha. (based on 35 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of cane in Q/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	972·5	784·5	769·0	822·5	830·5	1156·0

C.D.=112·7 Q/ha.

Years	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E./ plot
1962	965·0	655·0	659·0	796·0	718·0	1098·0	**	815·2	123·7
1963	980·0	914·0	879·0	849·0	943·0	1214·0	**	963·2	79·0
Pooled	972·5	784·5	769·0	822·0	830·5	1156·0	**	815·2	111·0

Crop :- Sugarcane (*Main*). **Ref :- T.N. 64(53).**

Site :- Sugarcane Res. Stn., Gudiyattam. **Type :- 'D'.**

Object :—To study the effect of different chemicals (weedicides) on the control of weeds in Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Paddy—G.M.—Sugarcane. (b) Sugarcane. (c) 224 Kg/ha. of N as A/S and G.N.C. (ii) Clayey loam. (iii) 15.3.64. (iv) (a) 3 ploughings with victory plough and working patti for levelling. (b) Planting in trenches. (c) 37065, three budded setts/ha. (d) 100 cm. between rows. (e) N.A. (v) 250 Q/ha. of F.Y.M. (vi) Co.—419. (vii) Irrigated. (viii) As per treatments. (ix) 111 cm. (x) 10.3.65.

2. TREATMENTS :

6 weedicidal treatments : T_1=No weedicide treatment. Removal of weeds by means of labour as and when necessary, T_2=Ferroxone 2, 4-D 1·12 Kg/ha. as pre-emergence and post-emergence and later as often as necessary, T_3=Ferroxone 2, 4-D 1·12 Kg/ha. as pre-emergence 2·24 Kg/ha. as per post-emergence, T_4=Ferroxone 2, 4-D 1·12 Kg/ha. as pre-emergence and post-emergence and Dropin 2·24 Kg/ha. as post-emergence, T_5=Tafazine 2·24 Kg/ha. as pre-emergence and T_6=Ferroxone 2, 4-D 1·12 Kg/ha. as post-emergence and Tafazine 2·24 Kg/ha. as pre-emergence.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 30 m.×20 m. (iii) 4. (iv) (a) 10 m.×10 m. (b) 6 m.×10 m. (v) 2 rows each on either side of the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of early shoot borer and top borer was noticed. Spraying of Endrin was taken up. (iii) Weight of weed, population counts and yield of Sugarcane. (iv) (a) 1964 only. (b) No. (c) Nil. (v) (a) Cuddalore. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 8075 Q/ha. (ii) 135·8 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Sugarcane Q/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	836·0	715·0	837·0	745·0	786·0	926·0

Crop :- Sugarcane (*Main*). **Ref :- T.N. 62(151).**

Site :- Sugarcane Res. Sub. Stn., Sirugamani. **Type :- 'D'.**

Object :—To find out the relative efficacy of various fungicides for the control of Sett-rot disease.

1. BASAL CONDITIONS :

(i) (a) Paddy - Sugarcane—G.M. (b) Paddy. (c) 168 Kg/ha. of Super+168 Kg/ha of A/S. (ii) Sandy loam. (iii) Nil/31.3.62. (iv) (a) Digging with spade and forming ridges and furrows. (b) Planting of two-budded setts along the furrows. (c) 56,000 two-budded setts/ha. (d) 1 m. between cane rows and 10 cm. between setts. (e) —. (v) Nil. (vi) Co.—419. (vii) Irrigated. (viii) 1 hand weeding and 1 earthing up. (ix) 94 cm. (x) 30.3.63.

2 TREATMENTS :

8 fungicidal treatments : T_1=Aretan—250 gm. in 100 litres of water, T_2=Bordeaux mixture 1%, T_3=Captan—500 gm. in 100 litres of water, T_4=Hexasan—500 gm. in 100 litres of water, T_5=Merculine—125 gm. in 100 litres of water, T_6=Thiram—0·2%, T_7=Control I (treated with the spore suspension of the fungus but not treated with any fungicides) and T_8=Control II (No treatment).

The setts in all treatments except setts in control II were dipped in the spore suspension of the fungus for half an hour. Then all these setts except in control I were dipped in the respective fungicides and then planted.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 16 m.×12 m. (iii) 4. (iv) (a) 6 m.×4 m. (b) 4 m.×2 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Negligible. (iii) Germination counts at the end of the fifth week of planting only. (iv) (a) 1962 only. (b) and (c) Nil. (v) and (vi) Nil. (vii) Yield data—N.A.

5. RESULTS :

(i) 26·67 degrees. (ii) 5·07 degrees. (iii) Treatment differences are significant. (iv) Mean percentage germination in degrees.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	29·80	23·35	24·11	30·30	27·96	21·52	20·53	35·79

C.D.=7·47 degrees.

Crop :- Sugarcane (*Main*). **Ref :- T.N. 63(206).**

Site :- Sugarcane Res. Sub-Stn., Sirugamani. **Type :- 'D'.**

Object :—To find out the relative efficacy of various fungicides for the control of Sett-rot disease.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—G.M. (b) Paddy. (c) The land was newly required and as the previous crop was not raised by the Res. Station, the details of the manure applied are not available. (ii) Sandy loam. (iii) Nil/16.4.63. (iv) (a) Digging with spade and forming ridges and furrows. (b) Planting the two budded setts along the furrows. (c) 56,000 two-budded setts/ha. (d) 1 m. between cane rows and 10 cm. between setts. (e) — (v) Nil. (vi) Co.—419. (vii) Irrigated. (viii) 1 hand weeding and 1 earthing up. (ix) 88 cm. (x) 22.5.64.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control (No treatment), T_1=Agallol—500 gm. in 100 litres of water, T_2=Aretan—250 gm. in 100 litres of water, T_3=Bordeaux mixture 1%, T_4=Captan—500 gm. in 100 litres of water, T_5=Cupravit—500 gm. in 100 litres of water, T_6=Merculine—125 gm. in 100 litres of water and T_7=(Treated with the spore suspension of the fungus but not treated with any fungicides).

The setts in all treatments except setts in control II were dipped in the spore suspension of the fungus for half an hour. Then all these setts except in control I were dipped in the respective fungicides and planted.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 20 m.×16 m. (iii) 4. (iv) (a) 8 m.×5 m. (b) 6 m.×3 m. (v) 100 cm.×100 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Negligible. (iii) Germination counts at the end of the fifth week of planting only. (iv) (a) 1963 only. (b) and (c) Nil. (v) and (vi) Nil. (vii) Yield data—N.A.

5. RESULTS :

(i) 37·44 degrees. (ii) 7·14 degrees. (iii) Treatment differences are not significant. (iv) Mean percentage of germination in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean angle	34·45	40·48	38·04	42·09	38·48	36·02	36·96	32·99

Crop :- Sugarcane (*Main*). **Ref :- T.N. 64(207).**

Site :- Sugarcane Res. Sub-Stn., Sirugamani. **Type :- 'DCV'.**

Object :—To study the intensity of attack of scale insects on the provising varieties of Sugarcane and their control measures.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—G.M. (b) Paddy. (c) 168 Kg/ha. of Sugarcane+168 Kg/ha. of A/S. (ii) Sandy loamy. (iii) Nil/30.3.64. (iv) (a) Digging with spade and forming ridges and furrows (b) Planting two-budded setts along the furrows. (c) 56,000 two budded setts/ha. (d) 1 m. between rows and 10 cm. between setts. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 hand weeding and 1 earthing up. (ix) 90 cm. (x) 8 4.65.

2. TREATMENTS :

Main-plot treatments :

5 varieties : V_1=Co. 419, V_2=Co.—449, V_3=Co.—658, V_4=Co.—1175 and V_5=Co.—1206.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of trashing : T_0=No trashing and T_1=Trashing.

(2) 2 levels of spraying : S_0=No folidol spray and S_1=Folidol 0·1% spray.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication; 4 sub-plots/main-plot. (b) 30 cm. × 20 m. (iii) 4. (iv) (a) 6 m. × 5 m. (b) 4 m. × 3 m. (v) 100 cm. × 100 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of scale insects which is the pest under study. (iii) Yield of cane, incidence of the pest and quality of juice. (iv) (a) 1964 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Cane yield

(i) 684·6 Q/ha. (ii) (a) 167·29 Q/ha. (b) 135·4 Q/ha. (iii) Main effects of V and T are highly significant. (iv) Av. yield of cane in Q/ha.

	V_1	V_2	V_3	V_4	V_5	S_0	S_1	Mean
T_0	632·9	669·0	698·2	879·9	874·5	734·0	767·8	750·9
T_1	392·1	690·6	621·6	698·2	688·6	644·6	591·8	618·2
Mean	512·5	679·8	659·9	789·1	781·6	689·3	679·8	684·6
S_0	538.8	725·0	626·7	769·6	786·5			
S_1	486·2	634·6	693·1	808·5	776·6			

C.D. for V marginal means=128·9 Q/ha.
C.D. for T marginal means=66·0 Q/ha.

Scale insect incidence

(i) 42·23 (ii) (a) 3·75. (b) 3·14. (iii) Main effect of V is significant and that of T is highly significant. (iv) Mean incidence percentage in degrees.

	V_1	V_2	V_3	V_4	V_5	S_0	S_1	Mean
T_0	44·8	43·3	43·5	46·3	41·7	44·2	43·6	43·9
T_1	44·9	40·7	41·0	40·0	36·1	40·6	40·5	40·5
Mean	44·9	42·0	42·2	43·1	38·9	42·4	42·0	42·2
S_0	46·4	41·5	41·0	44·0	39·1			
S_1	43·4	42·5	43·4	42·2	38·7			

C.D. for V marginal means=2·90 degrees.

C.D. for T marginal means=1·53 degrees.

Crop :- Cotton (*Main*).

Ref :- T.N. 60(132), 61(37), 62(59), 63(76), 64(80).

Site :- Agri. Res. Stn.,
Bhavanisagar.

Type :- 'M'.

Object :— To study the effect of different methods of placement of standard and straight fertilizers on Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 60 (132), 62(59) ; *Cumbu* for 64 (80) ; *Sunhemp* for others. (c) 45 Kg/ha. of N as A/S for 60 (132); 123·5 Q/ha. of F.Y.M. for 62 (59); 123·5 Q/ha. of compost+225 Kg/ha. of A/S+134 Kg/ha. of Super for 64 (80) ; Nil for others. (ii) Sandy loam. (iii) 19.9.1960, 29.9.1961, 25.9.1962, 23.9.1963, 26.9.1964. (iv) (a) 3 to 4 ploughings. (b) Dibbling in lines. (c) 20 Kg/ha. for 60 (132) ; 17 Kg/ha. forothers. (d) 61 cm.×23 cm. (e) 2. (v) 250 Q/ha. of F.Y.M. for 60 (132) ; 123·5 Q/ha. of F.Y.M. for 61 (37) ; 224 Q/ha. of F.Y.M. for others. (vi) M cu-1. (vii) Irrigated. (viii) 2 weedings and hoeing. (ix) 37 cm. ; 61 cm. ; 52 cm. ; 32 cm. ; 25 cm. (x) 9.2.1961 to 7.4.1961 ; 15.2.1962 to 24.3.1962 ; 14.2.1963 to 28.3.63 ; 7.2.64 to 28.3.64 ; 10.2.65 to 22.4.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control.

(1) 2 sources of N : S_1=Standard mixture to supply 45 Kg/ha. of N and proportionate P_2O_5 and K_2O and S_2=A/S, P_2O_5 and K_2O to supply the same amount of N.

(2) 3 methods of placement : P_1=Placed at a distance of 5 cm. on either side, P_2=Placed at the centre of two rows and P_3=Placed at the centre of two rows in the alternate interspaces.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 10·9 m.×4·3 m. (b) 10·7m.×3·8 m. for 60 (132); 40·5 sq. m. for 61(37), 62 (59) ; 11·4 m.×4·1 m. for others. (v) N.A. for 61 (37), 62 (59); 23 cm.× 61cm. for othres. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of jassids bollworm for 60(132). (iii) Folidol 0·025% was sprayed twice ; No incidence for others. (iii) Yield of *Kapas*. (iv) (a) 1960-64. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and interaction is absent.

5. RESULTS :

60(132)

(i) 858 Kg/ha. (ii) 225·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=714

	P_1	P_2	P_3	Mean
S_1	926	847	722	832
S_2	825	1037	937	933
Mean	876	942	830	883

61(37)

(i) 221 Kg/ha. (ii) 116·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=183

	P_1	P_2	P_3	Mean
S_1	249	188	303	247
S_2	243	207	176	209
Mean	246	198	240	228

62(59)

(i) 931 Kg/ha. (ii) 176·6 Kg/ha. (iii) Control vs others is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=614

	P_1	P_2	P_3	Mean
S_1	1039	994	1000	1011
S_2	950	890	1031	957
Mean	995	942	1016	984

C.D. for comparison of control vs. others=159·0 Kg/ha.

63(76)

(i) 406 Kg/ha. (ii) 98·6 Kg/ha. (iii) Control vs. others is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=215

	P_1	P_2	P_3	Mean
S_1	536	373	421	443
S_2	469	450	378	432
Mean	503	412	400	438

C.D. for comparison of control vs. others=88·8 Kg/ha.

(i) 1631 Kg/ha. (ii) 264·0 Kg/ha. (iii) Control vs. others is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=135·9 Kg/ha.

	P_1	P_2	P_3	Mean
S_1	1761	1650	1584	1665
S_2	1569	1717	1775	1687
Mean	1665	1684	1680	1676

C.D. for comparison of control vs. others=237·7 Kg/ha.

Crop :- Cotton (*Monsoon*). **Ref :- T.N. 65(28).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To find out the response of Cotton to increased doses of N.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sunhemp*. (c) Nil. (ii) Red gravelly loam. (b) Refer (iii) 15.9.65. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 18 Kg/ha. (d) 75 cm.×23 cm. (e) 2. (v) 12 m. tonns/ha. CM.+22 Kg/ha. of P_2O_5+17 Kg/ha. of K_2O. (vi) Men-3. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) 40 cm. (x) 29.1.66 to 18.3.66.

2. TREATMENTS :

5 levels of N as A/S : $N_0=0$, $N_1=33$, $N_2=44$, $N_3=56$ and $N_4=67$ Kg/ha.

N as A/S applied in 2 doses half as basal dressing and the other half one month after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 10·7 m.×4·0 m. (b) 9·1 m.×3·5 m. (5) 76 cm.×23 cm. (vi) Yes.

4. GENERAL:

(i) Very good. (ii) Nil. (iii) Yield of *Kapas*. (iv) (a) 1965-contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2632 Kg/ha. (ii) 178·8 Kg/ha. (iii) Control vs. rest is significant. (iv) Av. Yield of *Kapas* in Kg/ha.

Treatment	N_0	N_1	N_2	N_3
Av. yield	2449	2522	2709	2746

C.D. for control vs. others=170·2 Kg/ha.

Crop :- Cotton **Res :- T.N. 60(34).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'M'.**

Object :— To study the different varieties of legumes suitable to the tract.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red gravelly loam. (b) N.A. (iii) 12, 13.9.60. (iv) (a) 2 to 3 ploughings. (b) Dibbling. (c) 17 to 22 Kg/ha. (d) 5cm × 22cm. (e) N.A (v) Nil. (vi) MCU-1. (vii) Irrigated. (viii) Weeding and hoeing twice ; earthing up once. (ix) N.A. (x) 31.1.61 to 19.3.61.

2. TREATMENTS :

Main-plot treatments :

5 green manure crops : G_1=Sunhemp, G_2=Dew gram, G_3=Cowpea, G_4=Daincha, G_5=Sesbania, G_6=Indigo.

Snb-plot treatments :

2 levels of P_2O_5 as Super : P_0=0, and P_1=33·6 Kg/ha.

3. DESIGN ;

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot, (b) —. (iii) 4. (iv) (a) 19·5 m. × 5·5 m. (b) 18·3 m. × 4·6 m. (v) 61 cm. × 46 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *Kapas*. (iv) (a) 1956-60. (b) No. (c) Nil. (v) to (vi) Nil.

5. RESULTS :

(i) 648 Kg/ha. (ii) (a) 124·6 Kg/ha. (b) 153·7 Kg/ha. (iii) Main effects of G and P are highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

	G_1	G_2	G_3	G_4	G_5	G_6	Mean
P_0	585	833	483	639	407	550	583
P_1	903	987	602	854	467	460	712
Mean	744	910	543	746	437	505	648

C.D. for G marginal means=132·8 Kg/ha.
C.D. for P marginal means=93·3 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 62(120).**

Site :- Central Farm, Coimbatore. **Type :- 'M'.**

Object :—To find out the efficacy of C/A/N as a source of N on irrigated Cambodia Cotton as compared to A/S.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) Nil. (ii) Black loamy. (iii) 9.9.62. (iv) (a) Two ploughings with Victory plough and one with country plough. (b) Dibbling in lines along the ridges. (c) 14 Kg/ha. (d) 75 cm. × 23 cm. (e) 2. (v) 12·5 tons/ha. of F.Y.M. (vi) Cambodia Cotton Meuz. (vii) Irrigated. (viii) Gap filling after a week. Hand hoeing, working junior hoe and earthing up with ridge plough. (ix) 49 cm. (x) 21.1.63 to 4.4 63.

2. TREATMENTS :

All combinations of (1) and (2)+one control

(1) 2 sources of N : S_1=A/S and S_2=C/A/N.

(2) 3 levels of N ; N_1=22·4, N_2=44·8 and N_3=67·8 Kg/ha.

N is applied in two equal doses after 40 days and 80 days of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 4·5 m. × 7·5 m. (b) 3·0 m. × 6·6 m. (v) 75 cm. × 45 cm. (vi) Yes.

4. GENERAL :

(i) Suppressed growth due to heavy rains in Oct. 62. (ii) Jassid and Aphid attack was noticed and folidol spraying was given. (iii) Plant height number of bolls per plant and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 682 Kg/ha. (ii) 162·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

Control=826 Kg/ha.

	N_1	N_2	N_3	Mean
S_1	597	599	627	608
S_2	885	669	569	708
Mean	741	634	598	658

Crop :- Cotton (*Winter*).

Site :- Agri. College & Res. Instt.,
Coimbatore.

Ref :- T.N. 62(68), 63(90), 64(101).

Type :- 'M'.

Object :—To study the comparative efficacies of different sources of N on Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—*Cholam*. (b) *Cholam* for 64(101); fallow for others. (c) N.A. for 64(101); Nil for others. (iii) Red loam. (iii) 29.8.62; 29.8.63 ; 3.9.64. (iv) (a) 3 ploughings, working junior hoe and levelling. (b) Dibbling by hand. (c) 11 Kg/ha. (d) 76 cm.×23 cm. (e) 2. (v) 125 Q/ha. of F.Y.M.+22·4Kg/ha. of P_2O_5+16·8 Kg/ha. of K_2O for 63(90); 125 Q/ha. of F.Y.M.+22·4 Kg/ha. of P_2O_5 for others. (vi) M.C.U.—3. (vii) Irrigated. (viii) 3 weedings+hoeing+interculturing. (ix) 45 cm., 17 cm., 33 cm. (x) 1.2.63 to 2.3.63; 17.1.64 to 14.3.64; 25.1.65 to 8.3.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control
(1) 3 sources of N : S_1=A/S, S_2=C/A/N and S_3=Urea.
(2) 2 levels of N : N_1=44·8 and N_2=67·2 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) 6·4 m.×53·4 m. for 62(68); 6·4 m.×32·0 m. for 63(90); 6·4 m.×42·7 m. for 64(101). (iii) 4. (iv) (a) 6·4 m.×7·6 m. for 62(68); 6·4 m.×4·6 m. for 63(90); 6·4 m.×6·1 m. for 64(101). (b) 6·4 m.×6·1 m. for 62(68); 6·4 m.×3·1 m. for 63(90); 6·4 m ×4·6 m. for 64(101). (v) 76 cm. on either side. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Severe incidence of boll worms, jassids and mealy bugs for 64(101); Severe incidence of boll worm for others. Parathion compounds were sprayed for all the experiments. (iii) Yield of *kapas*. (iv) (a) 1962—64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Due to break up of pump set, irrigation was inadequate for 64(101). Error variances are homogeneous and interaction is absent.

5. RESULTS :

(i) 100·2 Kg/ha. (ii) 163·5 Rg/ha. (based on 66 d.f. made up of various components of Treatment×years interaction and pooled error). (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

Control=987 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	1030	970	1012	1004
N_2	1020	1052	946	1006
Mean	1025	1011	979	1005

Years	S_1	S_2	S_3	Sig.	N_1	N_2	Sig.	G.M.	S.E./plot
1962	1043	1078	1101	N.S.	1056	1092	N.S.	1081	181·1
1963	1500	1445	1339	N.S.	1405	1451	N.S.	1412	179·6
1964	533	510	497	N.S.	551	475	N.S.	515	125·8
Pooled	1025	1011	979	N.S.	1004	1006	N.S.	1002	163·5

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(153), 64(61).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'M'.**

Object :—To find out the efficacy of C/A/N as a source of N as compared to A/S and Urea for Cotton crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize for 64(153); Maize fodder for 64(61). (c) Nil. (ii) Black loamy. (iii) 15.8.63, 12.9.64. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 14 Kg/ha. (d) 75 cm.×23 cm. (e) 2. (v) 120 to 125 Q/ha. of F.Y.M.+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) M.C.U.—3 (vii) Irrigated. (viii) Gap filling after a week, hand hoeing, working junior hoe and earthing up.(ix) N.A. (x) 24.12.63 to 1.2.64; 17.2 65 to 26.4.65.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 3 sources of N : S_1=C/A/N, S_2=A/S and S_3=Urea.
(2) 3 levels of N : N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha.

N was applied in two equal doses after 40 and 80 days of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 7·5 m.×7·5 m. for 63(153); 5·2 m.×4·5 m. for 64(61). (b) 6·0 m.×6·6 m. for 63(153); 4·7 m.×3·8 m. for 64(61). (v) 75 cm.×45 cm. for 63(153); 23 cm.×38 cm. for 64(61). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of jassid and aphid for 63(153), folidol was sprayed; No incidence for 64(61). (iii) Yield of *kapas*. (iv) (a) 1962—64 (modified in 63). (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and interaction is absent.

5. RESULTS :

63(153)

(i) 1680 Kg/ha. (ii) 235·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

Control=1499 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	1598	1693	1687	1659
N_2	1648	1840	1671	1720
N_3	1715	1596	1851	1721
Mean	1654	1710	1736	1700

64(61)

(i) 2084 Kg/ha. (ii) 423·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

Control=2003 Kg/ha.

	S_1	S_2	S_3	Mean
N_1	1861	1824	2250	1978
N_2	1909	2324	2025	2086
N_3	1952	2129	2568	2216
Mean	1907	2092	2281	2093

Crop :- Cotton (*Winter*).

Site :- Agri. College & Res. Instt., Coimbatore.

Ref :- T.N. 61(46), 62(66), 63(88).

Type :- 'M'.

Object :—To study the effect of N, P and K on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—*Cholam*. (b) N.A. for 63(88); *Sunhemp* for others. (c) N.A. for 63(88); Nil for others. (ii) Red loam. (iii) 1.9.61; 27.8.62; 21.8.63. (iv) (a) 2 to 3 ploughings, working junior hoe and levelling. (b) Dibbling (c) 11 Kg/ha. (d) 76 cm.×23 cm. (e) 2. (v) 250 Q/ha. of organic manure for 61(46) ; Nil for others. (vi) M.C.U.—3. (vii) Irrigated. (viii) 3 weedings+hoeing+interculturing. (ix) 37 cm.; 45 cm.; 23 cm. (x) 20.1.62 to 18.2.62; 4.1.63 to 21.2.63; 2.3.64.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=44·8$ Kg/ha.
(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=67·2$ Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : $K_0=0$ and $K_1=67·2$ Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 48·6 sq. m. (b) 40·5 sq. m. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Considerable attack of boll worms and jassid for 53(88). Spraying for insecticides done; Mild incidence of jassids for others. Folidol and Endrin were sprayed. (iii) Yield of *kapas*. (iv) (a) 1961—63. (b) No. (c) Nil. (v) (a) Srivilliputhur. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and interaction is absent.

5. RESULTS :

61(46)

(i) 284 Kg/ha. (ii) 60·4 Kg/ha. (iii) Main effect of N is highly significant and that of P is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	195	327	289	232	261
P_1	216	397	297	316	307
Mean	206	362	293	274	284
K_0	217	370			
K_1	194	354			

C.D. for N or P marginal means=44·4 Kg/ha.

62(66)

(i) 1229 Kg/ha. (ii) 268·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	1169	1283	1149	1303	1226
P_1	1103	1362	1243	1222	1233
Mean	1136	1323	1196	1263	1229
K_0	1068	1324			
K_1	1204	1322			

63(88)

(i) 721 Kg/ha. (ii) 105·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	711	718	704	725	715
P_1	696	757	787	666	727
Mean	703	738	745	696	721
K_0	712	778			
K_1	694	697			

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(97).**

Site :- Cotton Breeding Station, Coimbatore. **Type :- 'M'.**

Object :—To study the effect of N, P and K on cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Cholam* (regular). (b) Cotton. (c) N.A. (ii) Red loam. (iii) 12.8.64. (iv) Two ploughings, working junior hoe and levelling. (b) Dibbling by hand. (c) 11·2 Kg/ha. (d) 76·2 cm.×22·9 cm. (e) 2. (v) Nil. (vi) Andrews (*G. Barbadense*). (vii) Irrigated. (viii) 3 weedings hoeing and interculturing. (ix) 38·4 cm. (x) 18.1.65 to 12.3.65.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : N_0=0 and N_1=44·8 Kg/ha.
(2) 2 levels of P_2O_5 as super : P_0=0 and P_1=33·6 Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=56·0 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) 4 6 m.×30·5 m. (iii) 4 (iv) (a) 4·6 m.×3·8 m. (b) 4·6 m.×2·3 m. (v) 76 cm. on either sides along breadth. (vi) Yes.

4 GENERAL:

(i) Satisfactory. (ii) Negligible incidence of common cotton pests which were brought under control. (iii) Yield of *kapas*, height of plant, boll no. and weight. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1984 Kg/ha. (ii) 218·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	2066	2048	2035	2080	2057
P_1	1872	1948	1905	1915	1910
Mean	1969	1998	1970	1998	1984
K_0	1929	2011			
K_1	2009	1986			

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(96).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'M'.**

Object :—To study the effect of N, P and K fertilizers on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Cholam.* (b) Red loam. (c) Nil. (ii) (a) Red loam. (b) N.A. (iii) 31.8.64. (iv) (a) 3 ploughings, working junior hoe and levelling. (b) Dibbling by hand (c) 11·2 Kg/ha. (d) 76·2 cm.× 22·9 cm. (e) 2. (v) Nil. (vi) MCU-3. (vii) Irrigated. (viii) Weeding thrice, hoeing and interculturing. (ix) 33·5 cm. (x) 5.3.65.

2. TREATMENTS :

All combinations of (1), (2) and (3)+one control.

(1) 3 levels of N as A/S : N_1=44·8, N_2=56·0 and N_3=67·2 Kg/ha.
(2) 3 levels of P_2O_5 as super : P_1=22·4, P_2=44·8 and P_3=67·2 Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : K_1=0 and K_2=16·8 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 19. (b) N.A. (iii) 4. (iv) (a) 48·6 Sq. m. (b) 40·5 Sq. m. (v) One row each on either side. (vi) Yes

4. GENERAL :

(i) Good. (ii) Incidence of boll worms and jassids were noted. Spraying of folidol and endrin taken up. (iii) Yield of *kapas*, height of plant and boll no. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 479 Kg/ha. (ii) 69·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

Control=422 Kg/ha.

	N_1	N_2	N_3	K_1	K_2	Mean
P_1	470	469	525	511	465	488
P_2	476	486	513	498	485	492
P_3	465	475	463	471	464	468
Mean	470	477	500	493	471	482
K_1	475	492	513			
K_2	466	461	487			

Crop :- Cotton (*Wintr*). **Ref :- T.N. 63(151), 64(157).**

Site :- Agri. College Res. Stn., Coimbatore. **Type :- 'M'.**

Object :—To study the optimum doses of fertilizers and manures for Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereals-Cotton. (b) *Jowar*. (c) N.A. (ii) Black loam. (iii) 16.9.63, 7.9.64. (iv) (a) 3 ploughings. (b) Dibbling by hand. (c) 24·6 Kg/ha. (d) 76·2 cm.×22·9 cm. (e) 1. (v) Nil. (vi) MCU-3, for 63, MCU-1 for 64. (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 25·7 cm. in 63, 41·4 cm. for 64. (x) 24.2.64, 3.2.65.

2. TREATMENTS:

All combinations of (1), (2), (3) and (4)

(1) 3 levels of compost : $C_0=0$, $C_1=112·2$ and $C_2=224·4$ Q/ha.
(2) 3 levels of N as A/S : $N_0=0$; $N_1=56·1$ and $N_2=112·2$ Kg/ha.
(3) 3 levels of P_2O_5 as super : $P_0=0$, $P_1=33·7$ and $P_2=67·3$ Kg/ha.
(4) 3 levels of K_2O as Mur. of Pot. : $K_0=0$, $K_1=33·7$ and $K_2=67·3$ Kg/ha.

N applied half at the time of sowing and ½ at square initiation and other manures applied at the time of sowing.

3. DESIGN:

(i) 3^4 Fact. Confd. (ii) (a) 9 plots/block and 9 blocks/replication. (b) 41·4 m.×11·0 m. for 64, 49·5 m.× 6·1 m. for 63. (iii) 1. (iv) (a) 6·1 m.×5·5 m. (b) 5·6 m.×5·0 m. for 63, 11·0 m.× 4·6m. (b) 10·7 m.×3·1 m. for 64. (v) Yes.

4. GENERAL :

(i) Normal in 63, poor in N_2 plot during 64. (ii) Incidence of jassids, aphids and boll worm. Spray of endrin and folidol. (iii) Yield of *kapas*. (iv) (a) 63, 64 available. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are homogeneous and interaction is absent.

5. RESULTS :

(i) 1410 Kg/ha. (ii) 177·5 Kg/ha. (48 d.f. made up of pooled error and interactions of various components of treatment with years). (iii) Interaction C×N alone is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	P_0	P_1	P_2	Mean
C_0	1331	1467	1478	1420	1430	1426	1461	1382	1433	1425
C_1	1414	1377	1444	1404	1426	1406	1459	1394	1382	1412
C_2	1352	1499	1328	1456	1359	1365	1394	1416	1369	1393
Mean	1366	1448	1417	1427	1405	1399	1438	1397	1395	1410
P_0	1363	1459	1493	1464	1403	1448				
P_1	1353	1457	1382	1364	1423	1405				
P_2	1382	1427	1376	1452	1389	1344				
K_0	1407	1446	1427							
K_1	1393	1458	1364							
K_2	1298	1439	1459							

C.D. for the means in the body of C×N table=119·2 Kg/ha.

Years	C_0	C_1	C_2	Sig.	N_0	N_1	N_2	Sig.
1963	1360	1362	1342	N.S.	1276	1369	1426	N.S.
1964	1491	1455	1445	N.S.	1456	1527	1408	**
Pooled	1425	1412	1393	N.S.	1366	1448	1417	N.S.

Years	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E./plot
1963	1381	1347	1343	N.S.	1390	1364	1317	N.S.	1357	219.8
1964	1496	1448	1447	N.S.	1464	1446	1481	N.S.	1464	127·1
Pooled	1438	1397	1395	N.S.	1427	1405	1399	N.S.	1410	177·5

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(148).**

Site :- Coimbatore. **Type :- 'M'.**

Object :—To determine the optimum time of application of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereals. (b) *Jowar*. (c) Nil. (ii) Black loamy. (iii) 10.9.63/Nil. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (b) Sowing in lines. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) 17·9 Kg/ha. of P_2O_5 as super+16·8 Kg/ha. of K_2O as Mur. of Pot. (vi) MCU-3. (vii) Irrigated. (viii) Weedings 4 times and earthing once. (ix) 25·7 cm. (x) 12.2.64 on ards.

2. TREATMENTS :

All combinations of (1) and (2)+control (2 plots)

(1) 2 levels of N as A/S : N_1=56·1 and N_2=112·2 Kg/ha.

(2) 6 times of application of N : T_1=Full dose at sowing, T_2=Full dose at thinning, T_3=Full dose at flowering, T_4=Half dose at sowing+½ dose at thinning, T_5=Half dose at sowing+½ dose at flowering and T_6=Half dose at thinning+½ dose at flowering.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) 10·7 m.×64·4 m. (iii) 4. (iv) (a) 10·7 m.×4·6 m. (b) 9·1 m.×4·1 m. (v) 80 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, aphids, and bollworm, Spraying of Folidol, D.D.T. and B.H.C were done as control measures. (iii) Height of plant, flower and boll counts, no. of sympodia, low length, ginning percentage and yield of *kapas*. (iv) (a) 63 only (conducted in other years with differences in levels of treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 643 Kg/ha. (ii) 98·6 Kg/ha. (iii) Control *vs.* other and interaction N×T are highly significaut. (v) Av. yield of *kapas* in Kg/ha.

Control=479 Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
N_1	611	689	784	544	703	684	669
N_2	779	705	612	696	544	688	671
Mean	695	697	698	620	624	686	670

C.D. for the body of the table=141·0 Kg/ha.
C.D. for control *vs.* others=76·2 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(154).**
Site :- Coimbatore. **Type :- 'M'.**

Object :— To study the optimum time of application of N applied on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereals. (b) Ragi. (c) Nil. (ii) Black loam. (iii) 10.9.64/nil. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (b) Sowing in lines. (c) 22·4 Kg/ha. (d) 75 cm.×22·5 cm. (e) 1. (v) 17·9 Kg/ha. of P_2O_5+16·8 Kg/ha. as super as Mur. of Potash. (vii) Irrigated. (viii) Weeding, hand hoeing and earthing up once. (ix) 41.4 cm. (v) 7.2.65 to 16.3.65.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 2 levels of N as A/S : N_1=50 and N_2=100 Kg/ha.

(2) 6 lines of applications of N : T_1=Full dose at sowing, T_2=Full dose at thinning, T_3=Full dose at flowering, T_4=½ dose at sowing+½ dose at thinning, T_5=½ dose at sowing+½ dose at flowering and T_6=½ dose at thinning+½ dose at flowering.

3, DESIGN :

(i) Fact in R.B,D. (ii) (a) 14. (b) 11 m.×64·4 m. (iii) 4. (iv) (a) 11 m.×4·6 m. (b) 10·5 m.×3·1 m. (v) One row all round. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) Jassids, boll worm and top borer, spraying on Endrin and Folidol+fungicide and dusting of sevin were done as control measures. (iii) Hight of plant, flower and Boll counts, no. of sympodia, Halo length, giving pecentage and yield of *Kapas*. (iv) (a) 1964 only (conducted in other years with differences in levels of treatments). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1227 Kg/ha. (ii) 228·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=1312 Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
N_1	1341	1280	1255	1347	1098	1130	1242
N_2	1053	1125	1372	1185	1332	1034	1184
Mean	1197	1203	1314	1266	1215	1082	1213

Crop :- Cotton (*Main*). **Type :- T.N. 62(16), 63(25), 64(26).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'M'.**

Object :— To study the effect of N, P_2O_5 and K_2O alone and in combination on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereal. (b) *Cumbu*. (c) 22·4 Kg/ha. of N as urea+125 Q/ha. of compost, (ii) Black soil. (iii) 14.10.1962 ; 4.11.1963 ; 31.10.1964. (iv) (a) 2 ploughings+working *guntaka* once. (b) Dibbling in lines. (c) 12 to 20 Kg/ha. (d) 46 cm.×15 cm. (e) 1. (v) Nil. (vi) K-6 (late). (vii) Unirrigated. (viii) 2 hand hoeings and weedings+thinning+2 intercultures with *danthi*. (ix) 61 cm. ; 63 cm. ; 58 cm. (x) 20.2.63 to 15.6.63 ; 23.3.64 to 9.6.64 ; 3.3.65 to 15.6.65.

2. TREATMENTS :

All combinations of (1), (2) and (3).
(1) 3 levels of N as A/S : $N_0=0$, $N_1=33·6$ and $N_2=67·2$ Kg/ha.
(2) 3 level of P_2O_5 as Super : $P_0=0$, $P_1=33·6$ and $P_2=67·2$ Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=33·6$ and $K_2=67·2$ Kg/ha.
Treatments were applied in lines at the time of sowing.

3. DESIGN :

(i) 3^3 confd. (NPK is confd.) (ii) (a) 9 plots/block ; 3 blocks/replication. (b) 24·7×13·7 m. (iii) 4. (iv) (a) 13·7 m.×2·7 m. (b) 13·1 m.×1·8 m. (v) 30 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *Kapas*. (iv) (a) 1962-64. (b) No. (c) Results of combined analysis given under 5. (v) N.A. (vi) Crop was affected by drought. (vii) Error variances are heterogeneous and interaction is present.

5. RESULTS :

(i) 610 Kg/ha. (ii) 169·6 Kg/ha. (36 d.f. made up of various components of Treatments×years interaction). (iii) Main effects of N and P are highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	Mean
P_0	510	540	603	525	541	587	551
P_1	492	657	678	617	603	607	609
P_2	546	744	723	664	662	687	671
Mean	516	647	668	602	602	627	610
K_0	516	638	652				
K_1	489	651	666				
K_2	543	652	686				

C.D. for N or P marginal means=46·8 Kg/ha.

Years	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig	K_0	K_1	K_2	Sig.	G.M.	S.E./plot
1962	648	863	856	**	669	809	889	**	810	750	808	N.S.	789	183.1
1963	430	479	528	**	465	459	513	*	462	492	479	N.S.	479	94·3
1964	471	600	622	**	520	561	612	**	534	561	598	*	564	101·5
Pooled	516	647	668	**	551	609	671	**	602	601	628	N.S.	610	169 6

Crop :- Cotton (*Winter*). **Ref :- T.N. 62(8), 63(10), 64(11).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'M'.**

Object :- To find out the relative effects of different sources of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereal. (b) *Cholam* (fodder). (c) 22·4 Kg/ha. of N as Urea+125 Q/ha. of compost. (ii) Black soil. (iii) 15.10.62 ; 4.11.63 ; 20.10.64. (iv) (a) 2 ploughings+ working *guntaka* once. (b) Dibbling in lines. (c) 12 to 20 Kg/ha. (d) 46 cm.×15 cm. (e) 2. (v) Nil. (vi) K-6 (late). (vii) Unirrigated. (viii) 2 weedings and hoeing+2 *danthi* workings+1 to 2 thinnings. (ix) 61 cm. 63 cm. ; 58 cm. (x) 24.2.63 to 21.6.63 ; 25.3.64 to 11.6.64 ; 22.2.65 to 14.6.65.

2. TREATMENTS :

All coimbinatians of (1) and (2)+a control.

(1) 4 sources of N : S_1=C/A/N, S_2=A/S/N, S_3=Urea and S_4=A/S.

(2) 3 levels of N : N_1=22·4, N_2=44·8, and N_3=67·2 Kg/ha.

Fertilizers were applied just before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3 for 62(8) ; 4 for others. (iv) (a) 13·7 m.×2·7 m. (b) 13·1 m.× 1·8 m. (v) 30 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *Kapas*. (iv) (a) 1962-64. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Prolonged draught conditions affected the crop. (vii) Variances are heterogeneous and interaction is absent.

5. RESULTS :

62(8)

(i) 1114 Kg/ha. (ii) 101·4 Kg/aa. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=1010 Kg/ha.

	S_1	S_2	S_3	S_4	Mean
N_1	1075	1110	1159	971	1079
N_2	1136	1126	1162	1125	1137
N_3	1196	1162	1200	1055	1153
Mean	1136	1133	1174	1050	1123

63(10)

(i) 447 Kg/ha. (ii) 51·3 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=451 Kg/ha.

	S_1	S_2	S_3	S_4	Mean
N_1	460	429	397	499	446
N_2	415	441	356	512	431
N_3	482	495	408	467	463
Mean	452	455	387	493	447

C.D. for S margional means=42.5 Kg/ha.

64(11)

(i) 410 Kg/ha. (ii) 95·4 Kg/ha. (iii) 'Control vs. others' alone is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=274 Kg/ha.

	S_1	S_2	S_3	S_4	Mean
N_1	394	375	377	391	384
N_2	376	414	420	463	418
N_3	458	454	461	468	460
Mean	409	414	419	441	421

C.D. for 'control vs others'=100·7 Kg/ha.

Crop :. Cotton (*Winter*). **Ref :- T.N. 60(61), 61(11), 62(7), 63(9), 64(10).**

Site :- Reg. Res. Stn., Koilpatti. Type :- 'M'.

Object :—To study the effect of N, P and K on the yield of Cotton crop.

1. BASAL CONDITIONS :

(i) (a) Cotton—Cereal. (b) Irungu (fodder) *Cholam*. (c) 22.4 Kg/ha. of N as urea and 125 Q/ha. of compost. (ii) Black soil. (iii) 24.10.60, 19.10.61, 22.10.62, 4.11.63, 20.10.64. (iv) (a) 2 ploughings with country plough. (b) Dibbling in lines. (c) 12 to 20 Kg/ha. (d) 46 cm. × 15 cm. (e) 2. (v) Nil. (vi) K—6 (Karunganni, late). (vii) Unirrigated. (viii) 2 hoeings and weedings; thinning and 2 intercultures. (ix) 504 m.m. in 60, 778 in 61, 612 in 62, 625 in 63 and 580 m.m. in 64 (x) 6.3.61 to 11.5.61; 1.3.62 to 12.4.62; 2.8.263 to 14.6.63; 20.3.64 to 29.6.64; 22.2.65 to 14.6.65.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : N_0=0 and N_1=44·8 Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=67·3 Kg/ha.

(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=67·3 Kg/ha.

All fertilizers were applied just before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 7·6 m.×3·7 m. (b) 7·0 m.×2·7 m. (v) 2 rows.

4. GENERAL :

(i) Affected by drought. (ii) Nil. (iii) Yield of *kapas.* (iv) (a) 1960—64. (b) No. (c) Given under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogeneous. Interaction of Treatments in the (P×K) table with years is absent.

5. RESULTS :

(i) 370 Kg/ha. (ii) 139·3 Kg/ha. (based on 20 d.f. made up of interactions of N. P, K, N×P and N×K with years). (iii) Main effect of N alone is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	275	444	346	372	359
P_1	309	454	376	388	382
Mean	292	449	361	380	370
K_0	271	451			
K_1	314	447			

C.D. for N marginal means=45·9 Kg/ha.

Years	N_0	N_1	Sig.	P_0	P_1	Sig.	K_0	K_1	Sig.	G.M.	S.E./plot
1960	235	340	*	275	300	N.S.	270	305	N.S.	288	56·0
1961	151	279	*	184	246	N.S.	224	206	N.S.	215	94·0
1962	600	851	*	742	709	N.S.	696	755	N.S.	726	142·0
1963	239	461	**	320	380	**	356	344	N.S.	350	70·2
1964	236	315	*	276	275	N.S.	259	292	N.S.	276	96·7
Pooled	292	449	**	359	382	N.S.	361	380	N.S.	370	139·3

Crop :- Cotton. **Ref :- T.N. 61(56).**
Site :- Agri. Res. Stn., Palur. **Type :- 'M'.**

Object :—To evaluate the optimum dose and time of application of N for Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 12·5 tons/ha. of F.Y.M. (ii) Loamy soil. (iii) 23.2.61. (iv) (a) 2 ploughings and forming ridges and furrows. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 75 cm.×15 cm. (e) 2. (v) 12·5 tons/ha. of F.Y.M. (vi) MCU—2. Cotton. (vii) Irrigated. (viii) 2 weedings. (ix) 17 cm. (x) 7.6.61 to 28.7.61.

2. TREATMENTS :

Main-plot treatments :

3 times of application of N : M_1=Entire N applied at the time of sowing, $M_2=\frac{1}{2}$ N at the time of sowing and other $\frac{1}{2}$ N 6 weeks after sowing and $M_3=\frac{1}{3}$ N at the time of sowing, $\frac{1}{3}$ N four weeks after sowing and remaining $\frac{1}{3}$ N eight weeks after sowing.

Sub-plot treatments :

5 levels of N : $N_0=0$, $N_1=33·6$, $N_2=50·4$, $N_3=67·2$ and $N_4=84·0$ Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 10·7 m.× 4·6 m. (b) 9·1 m.×3·8 m. (v) 76 cm.× 38 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 564 Kg/ha. (ii) (a) 141·4 Kg/ha. (b) 104·1 Kg/ha. (iii) Main effects of N is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	Mean
M_1	568	578	592	637	635	602
M_2	415	488	572	708	561	549
M_3	401	464	604	568	665	540
Mean	461	510	589	638	620	564

C.D. for N marginal means=86·6 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(155).**

Site :- Fruit Res. Stn., Periyakulam. **Type :- 'M'.**

Object :—To determine the optimum time of application of N for Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) The same experiment for 1963 was conducted in the field during the previous crop season. (ii) Black loam. (iii) 16.10.64. (iv) (a) 3 ploughings with country plough and forming buds. (b) Hand dibbling in lines. (c) 22 Kg/ha. (d) 15 cm.×45 cm. (e) 1. (v) 18·2 Kg/ha of P_2O_5 as Super and 16·8 Kg/ha. of K_2O as Mur. Pot. (vi) MCU—1. (vii) Unirrigated. (viii) 3 weedings with hand hoes 30 days after sowing at an interval of 20 days. (ix) 83·5 cm. (x) 26.3.65 onwards.

2. TREATMENTS :

All combinations of (1) and (2)+control (2 plots)
(1) 2 levels of N as A/S : N_1=30, N_2=60 Kg/ha.
(2) 6 times of application of N : T_1=Full dose at sowing, T_2=Full dose at thinning, T_3=Full dose at flowering, T_4=Half dose at sowing+Half dose at thinning, T_5=Half dose at sowing+Half dose at flowering and T_6=Half dose at thinning+Half dose at flowering.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) 18·3 m.×38·4 m. (iii) 4. (iv) (a) 18·3 m.×2·7 m. (b) 18·0 m.×1·8 m. (v) 15 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No serious incidence of pests and diseases. Spraying of Endrin once and folidol 4 times was done as prophylactic measure. (iii) Height of plant flower and boll counts, no. of sympodia, Halo length, ginning percentage and yield of *kapas*. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 191 Kg/ha. (ii) 45·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
N_1	226	203	184	178	183	141	186
N_2	199	177	162	220	239	207	201
Mean	213	190	173	199	211	174	193

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(158).**

Site :- Fruit Res. Stn., Periyakulam. **Type :- 'M'.**

Object :—To determine doses of fertilizers and manures for Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) The same experiment for 1963 was conducted in the field during the previous crop season. (ii) Black loam. (iii) 13.10.64. (iv) (a) 3 ploughings with country plough] and forming beds. (b) Dibbling in lines. (c) 22 Kg/ha. (d) 45 cm.×15 cm. (e) 1. (v) Nil. (vi) MCU.—1. (vii) Unirrigated. (viii) 3 weedings and hoeings at an interval of 15 days and thinning. (ix) 83·6 cm. (x) 20.2.65 onwards.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 3 levels of compost : $C_0=0$, $C_1=5610$ and $C_2=11220$ Kg/ha.
(2) 3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ Kg/ha.
(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=22·4$ and $P_2=44·9$ Kg/ha.
(4) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=22·4$ and $K_2=44·8$ Kg/ha.

N applied in two doses $\frac{1}{2}$ at the time of sowing and other $\frac{1}{2}$ at square initiation. P_2O_5 and K_2O were applied at the time of sowing.

3. DESIGN :

(i) 3^4 Fact. confd. (ii) 9 blocks/replication; 9 plots/block. (b) 11·0 m.×41·1 m. (iii) 1. (iv) (a) 11·0 m.× 4·6 m. (b) 10·1 m.×3·7 m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassid, boll worms, stem weevil and leaf eating caterpillars. Spraying of Endrin and parathion and dusting of Sevin were done as control measures. (iii) Yield of *kapas* and other characteristics. (iv) (a) 1964—only. (b) No. (c) Nil. (v) Nil (Coimbatore and Srivelliputhur with difference in the levels of treatments). (vi) and (vii) Nil.

5. RESULTS :

(i) 243 Kg/ha. (ii) 44·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	P_0	P_1	P_2	Mean
C_0	213	229	246	227	226	234	232	218	238	229
C_1	257	259	256	248	246	278	248	250	274	257
C_2	240	241	249	248	224	257	246	255	229	243
Mean	236	243	250	241	232	256	242	241	247	243
P_0	235	217	273	250	245	230				
P_1	233	251	240	232	233	258				
P_2	241	261	238	242	218	281				
K_0	232	247	245							
K_1	223	235	238							
K_2	254	247	267							

Crop :- Cotton (*Summer*). **Ref :- T.N. 64(156).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'M'.**

Object :— To determine the optimum doses of fertilizers and manures for the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) 5600 Kg/ha. of G.M. and 168 Kg/ha. of A/S and 168 Kg/ha. of Super. (ii) Alluvium. (iii) 11.3.64. (iv) (a) Two ploughings with country plough and forming ridges and furrows. (b) Dibbling in holes. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) 3 hoeings and weedings and one earthing up. (ix) 26·9 cm. (x) 2·7.64 to 29.8.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4).

(1) 3 levels of compost : $C_0=0$, $C_1=11220$ and $C_2=22440$ Kg/ha.
(2) 3 levels of N as A/S : $N_0=0$, $N_1=56{\cdot}1$ and $N_2=112{\cdot}2$ Kg/ha.
(3) 3 levels of P_2O_5 as Super (16%) : $P_0=0$, $P_1=33{\cdot}7$ and $P_2=67{\cdot}3$ Kg/ha.
(4) 3 levels of K_2O as Mur. pot. (60%) : $K_0=0$, $K_1=233{\cdot}7$ and $K_2=67{\cdot}2$ Kg/ha.

All the manures were applied at the time of sowing.

3. DESIGN :

(i) 3^4 Fact.-confd. (ii) (a) 9 blocks/replication ; 9 plots/block. (b) 9·5 m.×47·7 m. (iii) One. (iv) (a) 9·5 m.×5·3 m. (b) 8·5 m.×3·8 m. (v) 50 cm.×75 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of Jassids, Aphids, Boll worm and Blackarm. Spraying of folidol and dusting of B.H.C., D.D.T. and sulphur were taken up as control measures. (iii) Height of plant, halo-length, ginning%, seed index, lint index, No. of sympodia, flower count and yield of *Kapas*. (iv) (a) 1964-only. (b) No. (c) Nil. (v) Coimbatore (and Periyakulam with differences in the levels of treatments). (vi) and (vii) Nil.

5. RESULTS :

(i) 1472 Kg/ha. (ii) 206·6 Kg/ha. (iii) Main effect of N is highly significant and C×P interaction is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	P_0	P_1	P_2	Mean
C_0	1365	1545	1422	1420	1532	1380	1287	1519	1525	1444
C_1	1389	1532	1559	1480	1520	1480	1443	1382	1655	1493
C_2	1318	1581	1539	1457	1478	1503	1544	1480	1414	1479
Mean	1357	1553	1506	1452	1510	1454	1425	1460	1531	1472
P_0	1340	1441	1494	1396	1422	1456				
P_1	1249	1558	1573	1494	1507	1379				
P_2	1483	1660	1452	1466	1600	1528				
K_0	1307	1446	1605							
K_1	1437	1630	1463							
K_2	1328	1583	1451							

C.D. for N marginal means=113·6 Kg/ha.
C.D. for body of C×P table=196·8 Kg/ha.

Crop :- Cotton (*Summer*). **Ref :- T.N. 61(83), 62(122), 63(162).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'M'.**

Object :— To study the effect of N, P_2O_5 and K_2O alone and in combination on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) 33·6 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (ii) Clay loam. (iii) 29·3.61 ; 3.3.62 ; 25.2.63. (iv) (a) 3 ploughings+forming ridges and furrows. (b) Dibbling by hand (c) 12·5 Kg/ha. (d) 76 cm. × 23 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) 2 hand weedings and hoeings. (ix) 23.cm. : 23 cm. ; 25 cm. (x) 9·8.61 to 27.9.61 ; 18.7.62 to 22.8.62 ; 13.6.63 to 25.7.63.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$, and $N_1=44·8$ Kg/ha.
(2) 2 levels of P_2O_5 as Supper : $P_0=0$ and $P_1=67·2$ Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : $K_0=0$ and $K_1=67·2$ Kg/ha.

Super and Mur. Pot. were applied in the soil as basal dressing at the time of sowing. A/S was applied in the soil in two doses : ½ at the time of sowing and ½ at square initiation.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 8. (b) 30·5 m. × 12·8 m. for 61(83) ; 6·4 m. × 48·8 m. for others. (iii) 4. (iv) 12·8 m. × 3·8 m. for 61 (83) ; 6·4 m. × 6·1 m. for others (b) 11·9 m. × 2·3 m. for 61 (83) ; 5·5 m. × 4·6 m. for others. (v) 46 cm. × 76 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild incidence of jassids, aphids, thrips and blackarm for 61 (83). Spraying of Endrin, folidol, copperfungicide and D.D.T., mild incidence of blackarm, thrips and bollworm for 62 (122). Spraying of Endrin, folidol, copper fungicide and D.D.T. Very mild incidence of last, and diseases for 63 (162). Spraying folidol and D.D.T. (iii) Yield of *Kapas*. (iv) (a) 1961-63. (b) No. (c) Results of combined analysis given under 5. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are homogeneous and interaction is absent.

5. RESULTS :

(i) 1173 Kg/ha. (ii) 104·3 Kg/ha. (based on 75 d.f made up of various components of Treatments × years interaction and pooled error). (iii) Main effect of N and interaction P × K are highly significant and main effect of P is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	1082	1210	1104	1188	1146
P_1	1130	1270	1224	1176	1200
Mean	1106	1240	1164	1182	1173
K_0	1096	1232			
K_1	1116	1248			

C.D. for N or P marginal means = 42·5 Kg/ha.
C.D. for P × K body of table = 60·1 Kg/ha.

Years	N_0	N_1	Sig.	P_0	P_1	Sig.	K_0	K_1	Sig.	G.M.	S.E./plot
1961	525	628	**	558	596	N.S.	576	578	N.S.	577	91·4
1962	864	1058	**	954	967	N.S.	939	983	N.S.	961	86·8
1963	1928	2033	**	1924	2038	**	1976	1985	N.S.	1981	117·4
Pooled	1106	1240	**	1146	1200	*	1164	1182	N.S.	1173	104·3

Crop .- Cotton (*Summer*). **Ref :- T.N. 63(147).**

Site :- Cotton Res. Stn., Srivilliputtur. Type :- 'M'.

Object :— To determine the optimum time of application of N for the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) N.A. (ii) (a) Alluvium. (b) N.A. (iii) 16.3.63. (iv) (a) Two ploughings with country plough and forming ridges (b) Dibbling by hand. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) First weeding 15 days after sowing and then at 2 to 3 weeks intervals. (ix) 25·4 cm. (x) June to August 1963.

2. TREATMENTS :

All combinations of (1) and (2)+One control.

(1) 2 levels N as A/S : $N_1=44·9$ and $N_2=89·8$ Kg/ha.

(2) 6 times of application of N : T_0=Full doses at sowing, T_1=Full doses at thinning, T_2=Full dose at flowering, T_3=Half dose at sowing+½ dose at thinning, T_4=Half dose at sowing+½ dose at flowering and T_5=Half dose at thinning +½dose at flowering.

3, DESIGN :

(i) R.B.D. (ii) (a) 13. (b) 10·7 m.×59·8 m. (iii) 4. (iv) (a) 10·7 m.×4·6 m. (b) 9·1 m.×4·1 m. (v) 80 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of bollworm, mites and blackarm Spraying of Parathion 50% and dusting of B.H.C., D.D.T., sevin and Sulphur were done as control measures. (iii) Height of plant, flower and Boll counts, no. of sympodia, halo length, ginning percentage and yield of *Kapas*. (iv) (a) 1963 only (continued with differences in the levels of treatments). (b) and (c) No. (v) (a) Nil (conducted at Coimbatore and Periyakulam with different in levels of treatments). (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 1276 Kg/ha. (ii) 167·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ ha.

Control=1169 Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	Mean
N_1	1177	1218	1362	1224	1388	1242	1268
N_2	1104	1358	1444	1223	1304	1271	1284
Mean	1141	1288	1403	1224	1346	1256	1276

Crop :- Cotton (*Summer*). **Ref :- T.N. 64(153).**

Site :- Cotton Res. Stn., Srivilliputtur. Type :- 'M'.

Object :— To determine the optimum lime of application of N for the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) 168 Kg/ha. of Super+168 Kg/ha. of A/S+5600 Kg/ha. of G.M. (ii) Alluvium. (iii) 4.3.64/nil. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (b) Dibbling by hand. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) One. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) First weeding 15 days after sowing and then once in 2 or 3 weeks. (ix) 26·8 cm. (x) 17·6.64 to 5.8.64.

2. TREATMENTS :

All combinations of (1) and (2)+Control (2 plots).

(1) 2 levels of N as A/S : $N_1=56{\cdot}1$ and $N_2=112{\cdot}2$ Kg/ha.

(2) 6 levels of application of N : T_0=Full dose at sowing, T_1=Full dose at thinning, T_2=Full dose at flowering, $T_3=\frac{1}{2}$ dose at sowing+$\frac{1}{2}$ dose at thinning, $T_4=\frac{1}{2}$ dose at sowing+$\frac{1}{2}$ dose at flowering and $T_5=\frac{1}{2}$ dose at thinning+$\frac{1}{2}$ dose at flowering.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 13·7 m.×3·8 m. (b) 12·8 m.×2·3 m. (v) 45 cm.×75 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of bollworm, mites and blackarm. Spraying Parathion 50% and dusting of B.H.C., D.D.T. sevin and sulphur were done as control measures. (iii) Height of plant, halo length, ginning %, no. of sympodia, flower count and yield of *Kapas.* (iv) (a) 1964-only (conducted in other years with different in levels of treatment). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1350 Kg/ha. (ii) 166·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=1304 Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	Mean
N_1	1464	1403	1366	1268	1314	1401	1369
N_2	1295	1207	1436	1391	1384	1361	1346
Mean	1380	1305	1401	1330	1349	1381	1358

Crop :- Cotton (*Summer*). **Ref :- T.N. 63(150).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'M'.**

Object :— To determine the optimum doses of fertilizer and manures for the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) 5600 Kg/ha. of G.M. and 168 Kg/ha. of A/S. (ii) Alluvium. (iii) 16.3.63. (iv) (a) 2 ploughings with country plough and forming ridges and furrows. (b) Dibbling in holes. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) 3 hoeings and weedings and one earthing up. (ix) 25 cm. (x) June to August 1963.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4).

(1) 3 levels of compost : $C_0=0$, $C_1=11220$ Kg/ha. and $C_2=22440$ Kg/ha.

(2) 3 levels of N as A/S : $N_0=0$, $N_1=44{\cdot}9$ and $N_2=89{\cdot}8$ Kg/ha.

(3) 3 levels of P_2O_5 as Super (16%) : $P_0=0$, $P_1=28{\cdot}0$ and $P_2=56{\cdot}1$ Kg/ha.

(4) 3 levels of K_2O as Mur. of Pot. : $K_0=0$, $K_1=28{\cdot}0$ and $K_2=56{\cdot}1$ Kg/ha.

N applied in two doses $\frac{1}{2}$ at sowing and $\frac{1}{2}$ at square initiation and other manures applied at the time of sowing.

3. DESIGN :

(i) 3^4 confounded factorial. (ii) (a) 9 plots per block and 9 blocks per replication. (b) 6·1 m.×49·5 m. (iii) 1. (iv) (a) 6·1 m.×5·5 m. (b) 4·6 m.×5·0 m. (v) 75 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of Jassids, Bollworm and Blackarm. Spraying of follidol and dusting of B.H.C., D.D.T. and sulphur were taken up as control measures. (iii) Plant height, flower and boll counts. no. of sympodia, halo length, ginning percentage and yield of *Kapas*. (iv) 1963 only (continued wiih differences in the levels of treatments). (b) and (c) No. (v) (a) (Conducted at Coimbatore and Periyakulam with differences in the levels of treatments). (b) Nil. (vi) to (vii) Nil.

5. RESULTS :

(i) 2110 Kg/ha. (ii) 171·7 Kg/ha. (iii) Main effect of N is highly significant and N×K interaction is significant. v) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	K_0	K_1	K_2	P_0	P_1	P_2	Mean
C_0	1938	2217	2221	2109	2070	2197	2178	2131	2066	2125
C_1	2028	2134	2186	2158	2128	2063	2168	2116	2064	2116
C_2	1857	2186	2225	2067	2129	2072	2084	2006	2177	2089
Mean	1941	2179	2211	2111	2109	2110	2143	2084	2102	2110
P_0	1951	2213	2266	2087	2136	2207				
P_1	1898	2200	2156	2049	2130	2075				
P_2	1974	2123	2210	2198	2060	2049				
K_0	1932	2253	2148							
K_1	1858	2211	2257							
K_2	2032	2072	2228							

C.D. for N marginal means=94·4 Kg/ha.
C.D. for body of N×K table=163·6 Kg/ha.

Crop :- Cotton. **Ref :- T.N. 60(M.A.E).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type II :—To study the effect of different levels of N, P, K and F.Y.M. on the yield of Cotton.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) N.A.; 9.9.61; N.A.; 3.9.63; 1.9.64. (iv) (a) 3 diggings and 2 hoeings. (b) Dibbling in lines. (c) 33·6 Kg/ha. (d) 61 cm.×23 cm. (e) N.A. (v) As per treatments. (vi) MCU–1. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) N.A.; 8.1.62; N.A.; 12 3.64; 24.4.65.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 levels of F.Y.M. : F_0=0 and F_1=5600 Kg/ha.
(2) 3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44·8 Kg/ha.
(3) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
(4) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Fact. confd. (ii) (a)9 plots/block and 6 blocks/replication, [3 blocks received F_0 and other 3 blocks received F_1 treatment]. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) and (iii) N.A. (iv) (a) 1957—contd. (b) and (c) No. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1960

(i) 1084 Kg/ha. (ii) 187·8 Kg/ha. (iii) Main effects of N and P are highly significant and that of F is significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	870	1057	1144	826	1039	1208	943	998	1131	1024
F_1	979	1209	1244	979	1199	1254	1080	1184	1168	1144
Mean	924	1133	1194	902	1119	1231	1012	1091	1149	1084
K_0	930	949	1156	801	1070	1165				
K_1	845	1229	1198	991	1078	1204				
K_2	997	1221	1229	914	1209	1324				
P_0	886	968	852							
P_1	910	1135	1312							
P_2	976	1297	1419							

C.D. for N or P marginal means=107·2 Kg/ha.
C.D. for F marginal means=104·6 K/gha.

1961

(i) 886 Kg/ha. (ii) 155·9 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	669	772	821	450	878	934	695	824	743	754
F_1	786	1010	1259	977	1018	1059	1025	1038	991	1018
Mean	727	891	1040	713	948	996	860	931	867	886
K_0	743	854	983	743	942	895				
K_1	794	909	1090	702	1055	1035				
K_2	644	910	1047	694	847	1059				
P_0	625	700	815							
P_1	704	1011	1129							
P_2	852	962	1175							

C.D. for N or P marginal means=109·0 Kg/ha.

1962

(i) 1172 Kg/ha. (ii) 178·9 Kg/ha. (iii) Main effects of P and K are significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	1127	1087	1170	1052	1049	1283	983	1196	1204	1128
F_1	1180	1262	1207	1177	1221	1251	1138	1218	1293	1216
Mean	1154	1174	1189	1115	1135	1267	1061	1207	1249	1172
K_0	1073	1027	1082	1103	936	1144				
K_1	1121	1340	1160	1164	1268	1189				
K_2	1268	1155	1323	1077	1200	1469				
P_0	1068	1235	1041							
P_1	1117	1074	1213							
P_2	1276	1214	1312							

C.D. for P or K marginal means=125·3 Kg/ha.

1963

(i) 774 Kg/ha. (ii) 145·7 Kg/ha. (iii) Main effects of P and F×N and F×P interactions are significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	595	590	542	314	693	720	502	609	616	576
F_1	748	956	1030	835	903	996	953	879	901	911
Mean	672	773	786	575	798	858	728	744	759	744
K_0	687	751	745	612	836	735				
K_1	673	736	824	542	781	911				
K_2	655	831	789	570	776	929				
P_0	551	578	596							
P_1	715	901	777							
P_2	749	846	986							

C.D. for P marginal means =101·9 Kg/ha.
C.D. for body of F×N or F×P tables=144·3 Kg/ha.

1964

(i) 663 Kg/ha. (ii) 141·4 Kg/ha. (iii) Main effects of F is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	619	570	609	557	559	682	536	642	620	599
F_1	687	726	769	746	678	758	685	715	782	727
Mean	653	648	689	652	619	720	611	678	701	663
K_0	627	583	622	630	559	643				
K_1	625	707	703	716	637	682				
K_2	707	655	742	609	660	835				
P_0	624	672	659							
P_1	580	626	650							
P_2	755	647	758							

C.D. for F marginal means=80·8 Kg/ha.

Crop :- Cotton. **Ref :- T.N. 60 and 61(M.A.E).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type V :—To study the effect of different times of application of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton for 61. (c) *Sunhemp* leaves at 5380 Kg/ha. (ii) Red loam. (iii) N.A.; 18.9.61. (iv) (a) Nil. (b) Dibbling. (c) 34 Kg/ha. (d) 61 cm. × 15 cm. (e) Nil. (v) 22·4 Kg/ha. of P_2O_5+5600 Kg/ha. of F.Y.M. (vi) MCV–1. (vii) Irrigated. (viii) One hoeing, earthing up and weeding. (ix) N.A. (x) N.A.; 25.1.62.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 sources of 50 Kg/ha. of N : S_1=A/S and S_2=Urea.

(2) 6 times of application of N : T_1=Full dose at sowing, T_2=Full dose at first interculture, T_3=Full dose at flowring, $T_4=\frac{1}{2}$ at sowing+$\frac{1}{2}$ at flowering, $T_5=\frac{1}{3}$ at sowing+$\frac{1}{3}$ at first interculturing+$\frac{1}{3}$ at flowering and $T_6=\frac{1}{2}$ at flowering+$\frac{1}{2}$ one month after flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 3. (iv) and (v) N.A.

4. GENERAL :

(i) Growth was not uniform in all the plots. (ii) Jassids and aphids attack, leaf roller and blackarm. Spraying B.H.C. 5% and folidol and fytolan. (iii) Yield of *kapas*. (iv) (a) 1957—61. (b) No. (c) Nil. (v) and (vi) N.A. (vii) Pooled results for 57 to 61 are given.

5. RESULTS :

(i) 1000 Kg/ha. (ii) 414·3 Kg/ha. (iii) N.A. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	Control	T_1	T_2	T_3	T_4	T_5	T_6	S_1	S_2
Marginal means	574	928	1059	1073	1075	1078	1006	1025	1048

Crop :- Cotton (*Kharif*). **Ref :- T.N. 62 to 65(M.A.E).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type V a :—To study the optimum method of application of N at different levels on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 22.9.63 for 63. N.A. for other years. (iv) and (v) N.A. (vi) MCU—3. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 levels of N : N_1=60 and N_2=120 Kg/ha.

(2) 5 methods of application : M_1=Broadcast at sowing. M_2=Placement of fertilizer one week before sowing about 12·5 cm. deep by plough sole method, M_3=Placement of fertilizer in the same line as seed by seed cum fertilizer drill, M_4=Placement of fertilizer about 4 cm. below the seed by seed-cum-fertilizer drill and M_5=Bend placement of fertilizers about 5 cm. below and 5 cm. away from the seed.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1962—65. (b) N.A. (c) Results of combined analysis are presented under 5. Results. (v) N.A. (vi) to (vii) Nil.

5. RESULTS:

(i) 1491 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of *kapas* in Kg/ha.

Control=976 Kg/ha.

Treatment	M_1	M_2	M_3	M_4	M_5	N_1	N_2
Marginal means	1503	1552	1694	1476	1488	1458	1628

Crop :- Cotton. **Ref :- T.N. 65(M.A.E).**

Site :- Model Agronomic Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type XI :—To study the effect of method of application of micro-nutrients on Paddy.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+3 extra treatments
(1) 6 sources of micro-nutrients : S_1=Mn. Sul., S_2=Zn. Sul., S_3=Cu. Sul., S_4=Borax, S_5=Sod. Molybdate and S_6=All the above micro-nutrients.
(2) 2 methods of application : M_1=Soil application and M_2=Foliar spray.
Extra treatments : T_0=Control, T_1=35 Kg/ha. each of N, P and K and T_2=Spartin at 395 Kg/ha.
T_1 is applied to all the 12 plots receiving micro-nutrients. T_1 and T_2 are applied to soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a), (b) and (v) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *kapas*. (iv) (a) 1965—66. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 797 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of *kapas* in Kg/ha.

T_0=511, T_1=745 and T_2=1130 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	693	877	942	843	724	752	805
M_2	816	797	757	838	859	684	792
Mean	754	837	850	840	792	718	798

Crop :- Cotton. **Ref :- T.N. 63, 64, 65(M.A.E).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type XII :—To study the effect of foliar application of fertilizers on the yield of Cotton.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

4 fertilizer treatments : F_1=44·8 Kg/ha. of N as A/S, F_2=22·4 Kg/ha. of P_2O_5 as Super, $F_3=F_1+F_2$, $F_4=F_3+$22·4 Kg/ha. of K_2O as Mur. Pot.

Sub-plot treatments ;

All combinations of (1) and (2)+2 extra treatments

(1) 3 methods of application: M_1=Soil application, M_2=Foliar application and M_3=Half soil+half foliar application.

(2) 2 levels of fertilizer : L_1=Half dose, L_2=Full dose.

Extra treatments: C_1=Water spray and C_2=Absolute control.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *kapas*. (iv) (a) 1963—66. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

1963

(i) 763 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of *kapas* in Kg/ha.

C_1=585 and C_2=667 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	955	1124	683	805	784	1046	899
F_2	656	584	613	567	537	550	585
F_3	789	1078	721	748	806	934	846
F_4	881	1103	731	767	869	1076	904
Mean	820	972	687	721	749	909	809

1964

(i) 907 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of *kapas* in Kg/ha.

C_1=713 and C_2=617 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	1021	1436	742	1667	1207	1350	1154
F_2	634	606	654	646	566	694	663
F_3	1001	1217	1019	1009	852	1219	1053
F_4	1380	1204	827	1091	1013	1162	1113
Mean	1009	1116	811	978	909	1106	988

1965

(i) 688 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of *kopas* in Kg/ha.

C_1=544 and C_2=486 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	917	1075	795	748	861	931	888
F_2	313	392	570	410	461	376	420
F_3	833	879	715	538	644	826	739
F_4	646	1224	656	899	1073	1126	937
Mean	677	893	684	649	759	815	746

Crop :- Cotton (*Kharif*).

Ref :- T.N. 62, 65(S.F.T.) for Coimbatore ; 67(S.F.T.) for Salem ; 63, 64(S.F.T.) for Tirunelveli.

Site :- (District) : Coimbatore, Salem and Tirunelveli.

Type :- 'M'.

Object :—Type : A_1—To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem, Red sandy for Tirunelveli. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =60 Kg/ha. of N.
N_2 =120 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
N_1P_1 =60 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_1 =120 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2 =120 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=120 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

N applied as A/S ; P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type—C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) 1962 to 1965 (1964 N.A.) for Coimbatore, 1962 for Salem, 1963 to 1964 for Tirunelveli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	359	357	279	201	414	381	493	87·5

Control yield=1614 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	149	194	98	267	250	416	510	50·3

Control yield=1848 Kg/ha. ; No. of trials=5.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	134	560	403	178	627	650	784	131·6

Control yield=1345 Kg/ha. ; No. of trials=2.

Tirunelveli

63 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	321	518	172	642	815	1161	1433	50·0

Control yield=2273 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	263	362	164	428	543	724	840	94·6

Control yield=2009 Kg/ha. ; No. of trials=3.

Crop :- Cotton (*Kharif*). **Ref :- T.N. 64, 65(S.F.T.).**
Site :- (District) : R. Puram. **Type :- 'M'.**

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red Sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=35 Kg/ha. of N.
N_2=70 Kg/ha. of N.
P_1=25 Kg/ha. of P_2O_5.
N_1P_1=35 Kg/ha. of N+25 Kg/ha. of P_2O_5.
N_2P_1=70 Kg/ha. of N+25 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+50 Kg/ha. of P_2O_5.
$N_2P_2K_1$=70 Kg/ha. of N+50 Kg/ha. of P_2O_5+25 Kg/ha. of K_2O.
N applied as A/S, P as Super and K as Mur. of Potash.

3. DESIGN :

Same as in type A_1 (*Kharif* Irrigated) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964 to 1965. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of kapas in Kg/ha.	51	61	19	64	71	113	155	18·4

Control yield=244 Kg/ha. ; No. of trials=8.

65 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E
Av. response of kapas in Kg/ha.	120	198	70	200	228	280	370	21·1

Control yield=281 Kg/ha. ; No. of trials=3.

Crop :- Cotton (*Rabi*).

Ref :- T.N. 63(S.F.T.) for Madurai and R. Puram ; 62, 64(S.F.T.) for Trichy and Coimbatore ; 62, 63, 64, 65(S.F.T.) for Salem and 62, 64, 65(S.F.T.) for Tirunelveli.

Site :- (District) : Madurai, R. Puram, Trichy, Coimbatore, Salem and Tirunelveli.

Type :- 'M'.

Object :—Type : A_1. To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O=Control (no manure).
N_1=60 Kg/ha. of N.
N_2=120 Kg/ha. of N.
P_1=35 Kg/ha. of P_2O_5.
N_1P_1=60 Kg/ha. of N +35 Kg/ha. of P_2O_5.
N_2P_1=120 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2=120 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=120 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (*Kharif* Irrigated) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 for Madurai ; 1963 to 1964 for R. Puram ; 1962 and 1964 for Trichy and Coimbatore 1962 to 65 for Salem ; 1962, 64 and 65 for Tirunelveli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Madurai

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	300	263	9	16	426	293	548	52·0

Control yield=913 Kg/ha. ; No. of trials=4.

R. Puram

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	157	244	146	344	227	370	514	122·8

Control yield=791 Kg/ha. ; No. of trials=3.

Trichy

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	63	148	117	19	176	305	393	107·7

Control yield=878 Kg/ha. ; No. of trials=4.

64 (S.F T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in K/ha.	75	154	—16	169	86	101	124	97·2

Control yield=564 Kg/ha. ; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	407	679	222	679	968	1163	1433	173·3

Control yield=2742 Kg/ha. ; No. of trials=5.

64(S.F T.) [Rabi]

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	288	518	492	733	774	1087	1317	81·9

Control yield=1968 Kg/ha. ; No. of trials=4

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	177	347	95	415	550	652	815	55·7

Control yield=1283 Kg/ha. ; No. of trials=8.

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	69	229	235	160	289	340	526	58·7

Control yield=1329 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	148	285	135	513	365	825	1212	71·6

Control yield=2940 Kg/ha. ; No. of trials=3.

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	117	224	174	257	364	487	616	108·0

Control yield=1305 Kg/ha. ; No. of trials=2.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	242	271	197	395	345	494	472	00·0

Control yield=741 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	153	151	148	305	285	316	373	94·1

Control yield=1065 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cotton in Kg/ha.	150	325	187	312	350	550	512	103·4

Control yield=1075 Kg/ha. ; No. of trials=3.

Crop :- Cotton (*Kharif*).

Ref :- T.N. 62(S.F.T.) for Salem ; 63, 64(S.F.T.) for Tirunelveli.

Site :- (District) : Salem and Tirunelveli.

Type :- 'M'.

Object :—Type : A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure)
N_1 =60 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
P_2 =70 Kg/ha. of P_2O_5.
N_1P_1 =60 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2 =60 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2 =120 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$=120 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.
(N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot).

3. DESIGN :

Same as in Type A_1 (*Kharif* Irrigated) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 only for Salem, 1963 to 1964 for Tirunelveli and 1963 only for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of kapas in Kg/ha.	89	314	649	426	649	645	829	146·2

Control yield=1322 Kg/ha. ; No. of trials=2.

Tirunelveli

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of kapas in Kg/ha.	494	148	345	667	766	1013	1136	77·0

Control yield=2100 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of kapas in Kg/ha.	263	82	230	461	395	609	757	77·6

Control yield=1943 Kg/ha.; No. of trials=3.

Crop :- Cotton (*Rabi*).

Ref :- T.N. 62, 64, 65(S.F.T.) for Coimbatore and Tirunelveli ; 62, 64, 65(S.F.T.) for Salem 63, 64(S.F.T.) for Madurai ; 62, 64(S.F.T.) for Trichy and 63(S.F.T.) for R. Puram.

Site :- (District) : Coimbatore, Tirunelveli, Salem, Madurai, Trichy and R. Puram

Type : 'M'.

Object :—Type : A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_2 (*Kharif*, Irrigated) on page 451.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 [1965 N.A. for R. Puram] for Madurai and R. Puram and 1962 to 1966 [1963 N.A. for Coimbatore and Tirunelveli and 1963 and 1965 N.A. for Trichy] for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

62(S F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	201	232	184	301	261	368	563	33·0

Control yield=1264 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	280	247	546	623	772	901	1380	34·0

Control yield=2820 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	153	88	224	268	360	431	612	36·2

Control yield=1856 Kg/ha. ; No. of trials=4.

Salem

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	162	108	207	324	353	495	498	68·2

Control yield=1137 Kg/ha. ; No. of trials=3.

64 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	247	214	320	312	241	359	417	113·5

Control yield=980 Kg/ha. ; No. of trials=5.

65 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	250	125	250	337	325	525	527	45·2

Control yield=1050 Kg/ha. ; No. of trials=3.

Trichy

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	20	115	309	247	321	388	484	109·0

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	136	86	—18	57	172	179	136	74·8

Control yield=749 Kg/ha. ; No. of trials=3.

Tirunelveli

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	432	123	370	593	679	963	1111	147·0

Control yield=2606 Kg/ha.; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	362	543	411	774	889	881	1375	61·0

Control yield=2034 Kg/ha. ; No. of trials=4.

65 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	366	83	138	311	577	705	677	179.7

Control yield=1188 Kg/ha. ; No. of trials=7.

R. Puram

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	272	34	208	194	357	399	503	199·7

Control yield=770 Kg/ha. ; No. of trials=2.

Madurai

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	92	40	43	102	122	159	233	20.0

Control yield=472 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of *kapas* in Kg/ha.	154	89	72	364	289	430	497	64.3

Control yield=858 Kg/ha. ; No. of trials=3.

Crop :- Cotton. **Ref :- T.N. 64, 65(S.F.T.).**
Site :- (District) : R. Puram. **Type :- 'M'.**

Object :—Type : A_2. To study the response curves of important cereal, cash and oilseed crops to phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments,

O=Control (no manure).
N_1=35 Kg/ha. of N.
P_1=25 Kg/ha. of P_2O_5.
P_2=50 Kg/ha. of P_2O_5.
N_1P_1=35 Kg/ha. of N+25 Kg/ha. of P_2O_5.
N_1P_2=35 Kg/ha. of N+50 Kg/ha. of P_2O_5.
N_2P_2=70 Kg/ha. of N+50 Kg/ha. of P_2O_5.
$N_2P_2K_2$=70 Kg/ha. of N+50 Kg/ha. of P_2O_5+50 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in type A_1 (*Kharif*) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964 to 1965. (b) N.A (c). Nil. (v) to (vii) N.A.

5. RESULTS :

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cotton in Kg/ha.	29	14	34	55	57	91	149	33·1

Control yield=245 Kg/ha. ; No. trials=6.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cotton in Kg/ha.	122	48	103	176	195	268	466	39·5

Control yield=288 Kg/ha. ; No. of trials=3.

Crop :-Cotton (*Kharif*).

Ref :- T.N. 63, 65 (S.F.T.) for Coimbatore ; 62(S.F.T.) for Salem and 63, 64, 65(S.F.T.) for Tirunelveli.

Site :- (District) : Coimbatore, Salem and Tirunelveli.

Type :- 'M'.

Object :—Type : A_3. To study the response curves of important cereal, cash and oilseeds crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
N_1 =60 Kg/ha. of N.
K_1 =35 Kg/ha. of K_2O.
K_2 =70 Kg/ha. of K_2O.
N_1K_1 =60 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2 =60 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2 =120 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$ =60 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in Type A_1 (*Kharif*) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 [1964-N.A.] for Coimbatore ; 1963 to 1966 for Tirunelveli ; 1964-only for Madurai and 1962-only for Salem. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	109	113	255	274	250	346	322	N.A.

Control yield=852 Kg/ha.; No. of trials=2.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	180	93	95	174	260	248	274	33·1

Control yield=1769 Kg/ha.; No. of trials=5.

Salem

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	157	156	223	201	313	358	447	119·0

Control yield=1233 Kg/ha.; No. of trials=2.

Tirunelveli

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	617	345	691	642	741	1087	1210	32·0

Control yield=1902 Kg/ha. ; No. of trials=3.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	247	24	148	148	197	395	296	115·8

Control yield=2075 Kg/ha. ; No. of trials=2.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	345	243	287	344	551	705	747	73·0

Control yield=1026 Kg/ha ; No. of trials=8.

Crop :- Cotton (*Rabi*).

Ref :- T.N. 62, 64 (S.F.T.) for Coimbatore ; 63, 64, 65 (S.F.T.) for Madurai ; 63 (S.F.T.) for R. Puram ; 63, 64, 65 (S.F.T.) for Salem ; 62, 64(S.F.T.) for Tirunelveli and 62(S.F.T.) for Trichy.

Site :- (District): Coimbatore, Madurai, R. Puram, Salem, Tirunelveli and Trichy.

Type :- 'M'.

Object :—Type A_3—To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in Type A_3 (Kharif Irrigated) on page 455.

3. DESIGN :

Same as in Type A_1 (Kharif) on page 447.

4. GENERAL :

(i) to (iii) N.A. (iv) 1963 to 1966 for Madurai ; 1963 to 1964 for R. Puram ; 1962 to 1966 [1963 and 1965 N.A. for Coimbatore, Tirunelveli and Trichy] for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	193	57	263	106	228	306	359	32·4

Control yield=1349 Kg/ha.; No. of trials=5.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	325	371	153	299	386	357	398	96·6

Control yield=2915 Kg/ha.; No. of trials=3.

Salem

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	345	123	98	148	172	296	395	—

Control yield=815 Kg/ha.; No. of trials=2.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	200	109	151	244	252	378	400	68·0

Control yield=878 Kg/ha. ; No. of trials=5.

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	175	160	125	237	200	375	362	72·6

Control yield=1025 Kg/ha. ; No. of trials=3.

Madurai

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	—16	–8	3	36	80	147	133	27·0

Control yield=480 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	302	49	74	543	556	821	673	48·2

Control yield=803 Kg/ha.; No. of trials=2.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	365	177	452	727	877	1250	1265	—

Control yield=1113 Kg/ha.; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	444	98	284	481	716	889	1272	65·0

Control yield=2483 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	255	230	428	576	724	955	1087	50·4

Control yield=1828 Kg/ha.; No. of trials=4.

Trichy

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	38	152	343	199	167	301	275	119·2

Control yield=694 Kg/ha. ; No. of trials=4.

R. Puram

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of kapas in Kg/ha.	222	59	200	480	248	540	636	238·0

Control yield=834 Kg/ha. ; No. of trials=3.

Crop :- Cotton (*Kharif*). **Ref :- T.N. 64, 65(S.F.T.).**

Site :- (District) : R. Puram. **Type : 'M'.**

Object :—Type : A_3=To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O=Control (no manure)
N_1=35 Kg/ha. of N.
K_1=25 Kg/ha. of K_2O.
K_2=50 Kg/ha. of K_2O.
N_1K_1=35 Kg/ha. of N+25 Kg/ha. of K_2O.
N_1K_2=35 Kg/ha. of N+50 Kg/ha. of K_2O.
N_2K_2=70 Kg/ha. of N+50 Kg/ha. of K_2O.
$N_1P_1K_1$=35 Kg/ha. of N+25 Kg/ha. of P_2O_5+25 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

Same as in Type A_1 (*Kharif*) on page 447.

4. GENERAL :

(i) to (iii) N.A (iv) (a) 1964to 1965. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of *kapas* in Kg/ha.	57	49	49	100	116	130	160	28·8

Control yield=206 Kg/ha.; No. of trials=8,

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of *kapas* in Kg/ha.	86	42	96	139	178	224	321	20·3

Control yield=312 Kg/ha.: No. of trials=3.

Crop :- Cotton. **Ref :- T.N. 60 (S.F.T.)**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object :— Type B—To investigate the relative efficiency of different nitrogenous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

O=Control (no manure)
n_1=44·8 Kg/ha. of N as A/S.
n_2=89·6 Kg/ha. of N as A/S.
n_1'=44·8 Kg/ha. of N as Urea.
n_2'=89·6 Kg/ha. of N as Urea.
n_1''=44·8 Kg/ha. of N as A/S/N.
n_2''=89·6 Kg/ha. of N as A/S/N.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle/thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	O	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of Cotton in Kg/ha.	2010	2140	2190	2090	2190	2140	2300

G.M.=2151 Kg/ha., S.E./mean=64·3 Kg./ha., and No. of trials=5.

Crop :- Cotton. **Ref :- T.N. 61(S.F.T.)**

Site :- (District) : Madurai. **Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type B (1960) on page 459.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatment	O	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of Cotton in Kg/ha.	880	910	1000	920	1000	900	1080

G.M.=956 Kg/ha., S.E./mean=41·0 Kg/ha., and No. of trials=3.

Crop :- Cotton (*Main*). **Ref :- T.N. 60(128), 61(36), 62(53).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :—To determine the optimum period of sowing for Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut for 60(128), *Cholam* for 61(36) and *Sannhemp* for 62(53). (c) 125 Q/ha. of compost for 60(128) ; 125 Q/ha. of compost+25 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super for 61(36) and Nil for 62(53). (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Line sowing. (c) 16·8 Kg/ha. (d) 61 cm.×23 cm. (e) 2. (v) 125 Q/ha. of compost+22·4 Kg/ha. of N as A/S for 60(128) ; 244 Q/ha. of F.Y.M. for 61(36) and 62(53). (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) 45 cm. for 60(128) and N.A. for others. (x) 19.12.60 to 12.4.61 for 60(128) ; 25.12.61 to 1.3.62 for 61(36) and 22.12.62 to 19.3.63 for 62(53).

2. TREATMENTS :

6 sowing dates : D_1=15th August, D_2=25th August, D_3=5th September, D_4=15th September, D_5=25th September and D_6=5th October.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 11·9 m.×4·3 m. (b) 10·7 m.×3·8 m. for 60(128), 40·5 sq. meters for 61(36) and 11·4 m.×3·1 m. for 62(53). (v) 61 cm.×23 cm. for 60(128) ; N.A. for 61(36) and 23 cm.×61 cm. for 62(53). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Jassids and boll worm attack ; spraying of Folidol 0·03% for 60(128) and 61(36) and Nil for 62(53). (iii) Yield of *kapas*. (iv) (a) 1960-62. (b) No. (c) Results of combined analysis given under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 771 Kg/ha. (ii) 252·2 Kg/ha. (based on 10 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6
Av. yield	848	895	900	669	668	644

Years	D_1	D_2	D_3	D_4	D_5	D_6	Sig.	G.M.	S.E./plot
1960	871	959	714	581	491	358	*	662	157·9
1961	684	706	706	370	549	673	*	615	227·6
1962	990	1020	1280	1055	964	901	*	1035	181·0
Pooled	848	895	900	669	668	644	N.S.	771	252·2

Crop :- Cotton (*Main*). **Ref :- T.N. 63(61).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :—To determine the optimum periods of sowing for getting higher yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 12·4 tonnes/ha. of compost, 224 Kg/ha. of A/S and 140 Kg/ha. of Super. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings and levelling. (b) Line sowing. (c) 16·8 Kg/ha. (d) 61 cm.×23 cm. (e) 2. (v) 240 Q/ha. of F.Y.M. (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) N.A. (x) 24.1.64 to 2.4.64.

2. TREATMENTS :

6 dates of sowing : D_1=5.9.63, D_2=15.9.63, D_3=25.9.63, D_4=5.10.63, D_5=15.10.63 and D_6=25.10.63.

3. DESIGN :

(i) R.B.D. (ii) 6. (b) N.A. (iii) 6. (iv) (a) 11·9 m.×4·3 m. (b) 11·4 m.×3·1 m. (v) 23 cm.×61 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Jassids and Aphids were found. Folidol spray was carried out 5 to 6 times. (iii) Yield of *kapas*. (iv) (a) 1960—1964 (treatments modified in 63 and 64). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 532 Kg/ha. (ii) 111·8 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6
Av. yield	651	751	603	574	349	263

C.D.=132·8 Kg/ha.

Crop :- Cotton. **Ref :- T.N. 64(71).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :—To determine the optimum periods of sowing for getting higher yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cumbu.* (c) 123·5 Q/ha. of F.Y.M., 224 Kg/ha. of A/S and 140 Kg/ha. of Super. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings and levelling. (b) Line sowing. (c) 16·8 Kg/ha. (d) 61 cm.×23 cm. (e) 2. (v) 240 Q/ha. of F.Y.M. (vi) MCU-3. (vii) Irrigated. (vii) 2 weedings and hoeings. (ix) N.A. (x) 10.9.65 to 22.4.65.

2. TREATMENTS :

6 dates of sowing : D_1=25.8.64, D_2=5.9.64, D_3=15.9.64, D_4=25.9.64, D_5=5.10.64 and D_6=15.10.64.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 63(61) on page 461.

5. RESULTS :

(i) 1337 Kg/ha. (ii) 160·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6
Av. yield	1335	1359	1504	1344	1263	1215

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(98).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'C'.**

Object :—To find out the most suitable combination of spacing and plant population per hole to get the maximum yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Cholam* (regular). (b) Cotton. (c) N.A. (ii) Red loam. (iii) 12.8.64. (iv) (a) Two ploughings, working junior hoe and levelling. (b) Dibbling by hand. (c) As required by the various treatments, as the trial involves spacing treatments also. (d) and (e) As per treatments. (v) 126 Q/ha. of F.Y.M., 36 Kg./ha. of P_2O_5 and 6·0 Kg/ha. of K_2O. (vi) Andrews (*G. Barbadense*). (vii) Irrigated. (viii) 3 weedings, hoeing and interculruing. (ix) 38·4 cm. (x) 15.1.65 to 6.3.65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 spacings between rows : $R_1=76$ cm. and $R_2=92$ cm.
(2) 4 spacings between plants : $S_1=22$, $S_2=30$, $S_3=46$ and $S_4=62$ cm.

Sub-plot treatments :

Two plant populations per hole : $P_1=1$ and $P_2=2$ plants/hole.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 7·3 m.× 4·6 m. (b) 7·3 m.×2·7 m. (v) 92 cm. on either side along breadth. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible incidence of common Cotton pests which were brought under control. (iii) Yield of *kapas* and other characters. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1444 Kg/ha. (ii) (a) 217·2 Kg/ha. (b) 235·4 Kg/ha. (iii) Main effect of R is significant. Main effects of S and P are highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	S_4	P_1	P_2	Mean
R_1	1975	1778	1347	954	1324	1703	1514
R_2	1842	1575	1260	817	1209	1539	1374
Mean	1908	1677	1303	886	1266	1621	1444
P_1	1738	1415	1184	728			
P_2	2078	1938	1422	1044			

C.D. for R marginal means=112·9 Kg/ha.
C.D. for S marginal means=159·7 Kg/ha.
C.D. for P marginal means=121·5 Kg/ha.

Crop :- Cotton (*Main*). **Ref :- T.N. 64(14).**
Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'C'.**

Object :—To assess the response of Cotton to the application of 'Esso Mulch' in increasing the yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 12·4 tonnes/ha. of F.Y.M. (ii) Black soil. (iii) 18.10.64. (iv) (a) 2 ploughings. (b) Line sowing. (c) 16·8 Kg/ha. (d) 45 cm.×23 cm. (e) 2. (v) 123·6 Q/ha. of F.Y.M. (vi) Cotton K.—6. (vii) Unirrigated. (viii) Weedings. (ix) 37·0 cm. (x) 3 pickings on 31.3.65; 29.4.65 and 9.5.65.

2. TREATMENTS :

4 cultural treatments : T_0=Control (Hand picking of weeds), T_1=Dust Mulch hoeing, T_2=Trash Mulch and T_3=Esso Mulch.

Esso and Trash mulch were applied after sowing. Esso mulch was again applied two months after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 11·6 m.×5·5 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1964 only. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Very poor germination was found inspite of repeated gap fillings.

5. RESULTS :

(i) 520 Kg/ha. (ii) 228·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	397	510	576	596

Crop :- Cotton (*Main*). **Ref -: T.N. 64(15).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'C'.**

Object :—To asses the response of Cotton to the application of Esso Mulch and levels of irrigation in increasing the yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton—1. (c) 123·6 Q/ha. of F.Y.M. (ii) Black soil. (iii) 12.9.64. (iv) (a) 2 ploughings. (b) Line sowing. (c) 16·8 Kg/ha. (d) 45 cm. × 23 cm. (e) 2. (v) 12·4 tonnes/ha. of F.Y.M. (vi) Cotton K.—6. (vii) As per treatments. (viii) Weeding. (ix) 39 cm. (x) 7 pickings from 16.2.65 to 27.4.65.

2. TREATMENTS :

All combinations of (1) and (2)

4 cultural treatments : T_0=Control, T_1=Dust mulch, T_2=Trash mulch and T_3=Esso mulch.

2 levels of irrigation : I_1=Irrigation at every 15 days interval and I_2=Irrigation at every 10 days interval.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) (a) and (b) 6·1 m. × 4·9 m. (v) Nil. (vi) Yes .

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2778 Kg/ha. (ii) 381·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	T_0	T_1	T_2	T_3	Mean
I_1	2651	2657	2637	3031	2744
I_2	2691	2819	2866	2873	2812
Mean	2671	2738	2752	2952	2778

Crop :- Cotton (*Summer*). **Ref :- T.N. 62(102), 63(125), 64(131).**

Site :- Reg. Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :—To study the agronomy of American Cotton in the deltaic regions of Tamil Nadu state.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 168 Kg/ha. of N as A/S+168 Kg/ha. of P_2O_5 as Super+5600 Kg/ha. of green leaf. (ii) Clay loam. (iii) 2 to 6.3.62; 9 to 18.3.63; 7 to 11.2.64. (iv) (a) 1 ploughing and levelling. (b) Dibbling by hand. (c) N.A. (d) As per treatments. (e) 2. (v) Nil. (vi) P—216.F. (vii) Irrigated. (viii) 2 to 3 weedings and plant protection measures. (ix) 29 cm.; 28 cm.; 37 cm. (x) 16.6.62 to 23.7.62; 24.6.63 to 19.8.63; 25.6.64 to 16.7.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)
(1) 2 row spacings : R_1=46 and R_2=61 cm.
(2) 2 plant spacings : S_1=15 and S_2=23 cm.

Sub-plot treatments :

All combinations of (1), (2) and (3)
(1) 3 levels of N as A/S : N_0=0, N_1=34 and N_2=68 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22 and P_2=44 Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=50 Kg/ha.

P_2O_5 and K_2O applied in the soil at the time of sowing and N applied in the soil in two equal doses at 30 and 60 days after sowing.

DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 18 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 7·3 m.×4·0 m. for 62(102); 7·3 m.×3·7 m. for others. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of boll worm and jassids were controlled by spraying Parathion compounds. (iii) Yield of *kapas*. (iv) (a) 1962—64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) Manapparai. (b) Nil. (vi) Nil. (vii) Sub-plot error variances are heterogeneous.

5. RESULTS :

62(102)

(i) 595 Kg/ha. (ii) (a) 386·0 Kg/ha. (b) 102·5 Kg/ha. (iii) Main effect of N is highly significant. Interactions P×K, S×N, N×P×K and S×N×P are highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	525	586	660	576	584	611	574	607	619	562	590
R_2	505	600	694	598	586	615	601	598	595	604	600
Mean	515	593	677	587	585	613	587	602	607	583	595
S_1	551	593	678	578	609	634	597	618			
S_2	479	593	676	596	561	592	578	587			
K_0	509	575	678	568	566	628					
K_1	520	612	676	606	603	598					
P_0	509	593	659								
P_1	511	590	654								
P_2	525	596	718								

C.D. for N marginal means =29·0 Kg/ha.

C.D. for N means at the same level of S =40·9 Kg/ha.

C.D. for S means at the same level of N =108·1 Kg/ha

C.D. for means in the body of P×K table=40·9 Kg/ha..

63(125)

(i) 610 Kg/ha. (ii) (a) 567·3 Kg/ha. (b) 145·1 Kg/ha. (iii) Main effect of N is highly significant. Interactions S×N and R×S×N are significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	534	644	753	662	639	630	639	648	573	714	644
R_2	486	556	687	575	586	569	578	575	608	545	576
Mean	510	600	720	619	613	600	609	611	591	630	610
S_1	490	555	727	578	601	594	585	596			
S_2	531	645	713	659	624	606	633	626			
K_0	511	596	720	622	601	603					
K_1	510	605	720	615	624	596					
P_0	515	612	728								
P_1	502	629	707								
P_2	514	559	726								

C.D. for N marginal means =40·9 Kg/ha.

C.D. for N means at the same level of S=58·0 Kg/ha.

C.D. for S means at the same level of N=58·3 Kg/ha.

64(131)

(i) 805 Kg/ha. (ii) (a) 488·3 Kg/ha. (b) 104·5 Kg/ha. (iii) Main effects of N and K are highly significant. Interaction N×P×K, S×K and R×S×N are significant. (iv) Av. yield of *kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	647	782	990	797	818	804	777	836	755	857	806
R_2	623	808	979	773	807	830	763	844	821	786	803
Mean	635	795	985	785	813	817	770	840	788	822	805
S_1	630	783	952	769	785	811	738	838			
S_2	640	807	1018	801	841	823	801	842			
K_0	602	760	948	749	782	778					
K_1	668	830	1022	820	843	856					
P_0	624	785	945								
P_1	640	804	995								
P_2	640	796	1014								

C.D. for N marginal means =29·6 Kg/ha.
C.D. for K marginal means =24·1 Kg/ha.
C.D. for S means at the same level of K =58 9 Kg/ha.
C.D. for K means at the same level of S =34·1 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(167).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'CM'.**

Object :—To determine suitable dates of sowing and spacings for Cotton and their inter-relationship with levels of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar.* (c) N.A. (ii) Black loam. (iii) As per treatments. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (b) Line sowing on ridges. (c) 22 to 25 Kg/ha. (d) As per treatments. (e) 1. (v) 17·9 Kg/ha. of P_2O_5 as Super and 16·8 Kg/ha. of K_2O as Mur. Pot. (vi) MCU.—3. (vii) Irrigated. (viii) 5 weedings and 1 earthing up. (ix) 25·7 cm. (x) 2.2.64 and onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 dates of sowing: D_0=1.9.63 (Normal) and D_1=15.9.63.

(2) 3 spacings between plants : S_1=15, S_2=23 and S_3=30 cm.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=56·1 and N_2=112·2 Kg/ha.

N applied—½ at the time of sowing and other ½ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot. (b) 7·6 m.×115·2 m. (iii) 4. (iv) (a) 7 6 m.×6·4 m. (b) 6·1 m.×4.6 m. (v) 75 cm.×90 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of jassids and boll worm. Spraying of Endrin, Folidol+fungicide, D.D.T. and B.H.C. was done. (iii) Height of plant, flower and boll counts, no. of sympodia, yield of *kapas*, halo length and ginning percentage. (iv) (a) 1963 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1232 Kg/ha. (ii) (a) 387·4 Kg/ha. (b) 165·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
D_0	1132	1263	1189	1154	1188	1243	1195
D_1	1306	1206	1298	1250	1242	1318	1270
Mean	1219	1235	1243	1202	1215	1280	1232
N_0	1213	1233	1160				
N_1	1165	1216	1265				
N_2	1280	1255	1305				

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(180).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'CM'.**

Object :—To determine suitable dates of sowing and spacings for cotton and their iner-relationship with levels of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereals. (b) *Jowar*. (c) Nil. (ii) Black loam. (iii) As per treatments. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (c) Dibbling in lines. (c) 22·4 to 24·6 Kg/ha. (d) As per treatments. (e) 1. (v) 17·9 Kg/ha. of P_2O_5 as Super and 16·8 Kg/ha. of K_2O as Mur. Pot. (vi) MCU-1. (vii) Irrigated. (viii) 3 hand hoeings, 1 hand weeding and 1 earthing up. (ix) 41·4 cm. (x) 16.1.65 and onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 dates of sowing : D_1=16.8.64 (early sowing), D_2=1.9.64 (normal sowing) and D_3=15.9.64 (late sowing).

(2) 3 spacings between plants : S_1=15·2, S_2=22·9 and S_3=30·5 cm.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=56·1 and N_2=112·2 Kg/ha.

N applied—$\frac{1}{2}$ at the time of sowing and other $\frac{1}{2}$ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication ; 3 sub-plots/main-plot. (b) 7·3 m.×172·8 m. (iii) 4. (iv) (a) 7·3 m.×6·4 m. (b) 6·1 m.×5·5 m. (v) 60 cm.×45 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of jassids, boll worm and heliothis. (ii) Spraying of Endrin, Folidol+fungicide and dusting of Sevin were done. (iii) Height of plant, flower and boll count, no. of symbodia, halo length, ginning percentage and yield of *kapas*. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) (a) Srivilliputtur, Periyakulam and Koilpatti (with differences in treatments). (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1664 Kg/ha. (ii) (a) 264·3 Kg/ha. (b) 213·2 Kg/ha. (iii) Main effects of D and S and interaction D×S are highly significant. The interaction S×N is significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
D_1	1529	1957	1965	1831	1879	1741	1817
D_2	1575	1782	1948	1655	1836	1814	1768
D_3	1476	1524	1221	1411	1491	1319	1407
Mean	1527	1754	1711	1632	1735	1625	1664
N_0	1598	1693	1606				
N_1	1642	1808	1756				
N_2	1340	1762	1772				

C.D. for D or *S* marginal means =128·6 Kg/ha.
C.D. for N means at the same level of S=174·5 Kg/ha.
C.D. for S means at the same level of N=191·9 Kg/ha.
C.D. for body of D×S table =222·7 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(99).**

Site :- Cotton Breeding Station, Coimbatore. **Type :- 'CM'.**

Object :—To study the effects of time of sowing and nitrogeneous fertiliser on Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Cholam* (regular). (b) Cotton. (c) N.A. (ii) Red loam. (iii) As per treatments. (iv) (a) Two ploughings, working junior hoe and levelling. (b) Dibbling by hand. (c) 11·2 Kg/ha. (d) 76·2 cm.×22.9 cm. (e) 2. (v) 126 Q/ha. of F.Y.M.+36 Kg/ha. of P_2O_5 and 60 Kg/ha. of K_2O. (vi) Andrews (*G. Barbadense*). (vii) Irrigated. (viii) 3 weedings, hoeing and interculturing. (ix) 39·4 cm. (x) 15.12.64 and onwards.

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : S_1=15.7.64, S_2=31.7.64, S_3=15.8.64 and S_4=31.8.64.

Sub-plot treatments :

2 levels of N as A/S : N_1=48 and N_2=72 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 4·6 m.×4·6 m. (b) 4·6 m.×3 0 m. (v) 80 cm. on either side along breadth. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible incidence of common cotton pests which were brought under control. (iii) Yield of *kapas*, boll no. and weight and plant height. (iv) (a) 1964-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1776 Kg/ha. (ii) (a) 173·2 Kg/ha. (b) 282·6 Kg/ha. (iii) Main effect of S is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	S_4	Mean
N_1	2096	2148	1799	1067	1778
N_2	2203	2092	1752	1052	1775
Mean	2149	2120	1775	1060	1776

C.D. for S marginal means=150·7 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(175).**

Site :- Reg. Res. St., Koilpatti. **Type :- 'CM'.**

Object :—To study the effect of variations in the date of sowing, spacing, seed rate and fertilisers on Cotton and to find out their inter-relationship.

BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar.* (c) N.A. (ii) Black soil. (iii) As per treatments. (iv) (a) 3 ploughings with country plough. (b) Dibbling in lines. (c) 38 to 50 Kg/ha. (d) 46 cm. between rows. (e) As per treatments. (v) Nil. (vi) K-6 Pandyan. (vii) Unirrigated. (viii) 3 weedings and hoeings at an interval of 15 days. (ix) 53·9 cm. (x) 29.2.64 to 29.4.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 2 dates of sowing : D_1=Pre-monsoon (10.10.63) and D_2=Monsoon (4.11.63).

(2) 3 spacings between plants : S_0=11·4 cm., S_1=15·2 cm. and S_2=22·9 cm. (All rows were spaced 45·7 cm. apart).

(3) 2 numbers of plants per hole : R_1=1 and R_2=2.

Sub-plot treatments :

3 levels of manure : M_0=Control M_1=N at 22·4 Kg/ha. and M_2=P_2O_5 at 22·4 Kg/ha.

N was applied as A/S, half at sowing and half at square initiation and P_2O_5 was applied as Mur. Pot. at the time of sowing.

3. DESIGN:

(i) Split-plot. (ii) (a) 12 main-plots/replication ; 3 sub-plots/main-plot. (b) 8·2 m.×307·2 m. (iii) 4. (iv) (a) 8·2 m.×6·4 m. (b) 7·3 m.×5·5 m. (v) 45 cm.×45 cm. (vi) Yes.

4. GENERAL :

(i) Below normal. (ii) No serious incidence of pests and diseases. (iii) Height of plant, flower and boll counts, number of sympodia, halo length and yield of *kapas*. (iv) (a) 1963-only. (b) No. (c) Nil. (iv) (a) Similar expts. conducted at Srivilliputtur, Coimbatore and Periyakulam. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 286 Kg/ha. (ii) (a) 65·7 Kg/ ha. (b) 45·5 Kg/ha. (iii) Main effect of R and Interaction D×S is significant. Main effect of M and interaction M×D is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_0	S_1	S_2	R_1	R_2	M_0	M_1	M_2	Mean
D_1	305	267	299	301	279	272	316	302	290
D_2	279	296	270	293	271	244	322	317	282
Mean	292	282	285	297	275	258	319	309	286
M_0	266	257	250	270	245				
M_1	334	308	315	321	316				
M_2	303	303	322	326	292				
R_1	319	282	290						
R_2	265	281	279						

C.D. for R marginal means =19·3 Kg/ha.
C.D. for M marginal means =18·6 Kg/ha.
C.D. for body of D×S table =33·4 Kg/ha.
C.D. for M means at the same level of D=26·3 Kg/ha.
C.D. for D means at the same level of M=30·9 Kg/ha,

Crop :- Cotton (*Winter*).
Site :- Reg. Res. Stn., Koilpatti.

Ref :- T.N. 64(182).
Type :- 'CM'.

Object :—To study the effect of variations in the date of sowing, spacing and fertilizer on Cotton and to find out their inter-relationship.

1. BASAL CONDITIOS :

(i) (a) Nil. (b) Cotton. (c) Similar experiment for the previous year was conducted in the land. (ii) Black soil. (iii) As per treatments. (iv) (a) 2 ploughings with country plough. (b) Dibbling in lines. (c) 38 to 50 Kg/ha. (d) 45 cm. between rows. (e) As per treatments. (v) Nil. (vi) K-6 Pandyan. (vii) Unirrigated. (viii) 3 weedings and hoeings at an intervals of 10 days. (ix) 42·6 cm. (x) 18.2.65 to 31.3.65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1), (2) and (3)

(1) 2 dates of sowing : D_1=2.10.64 (Pre-monsoonic), and D_2=17.10.64 (monsoonic).

(2) 3 spacings between plants : S_1=11, S_2=15 and S_3=22·5 cm.

(3) 2 number of plants/hole : R_1=1 and R_2=2 plants/hole.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : N_0=0 and N_1=22 Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22 Kg/ha.

N applied ½ at sowing and other half at square initiation and P_2O_5 at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 12 main-plots/replication ; 4 sub-plots/main-plot. (b) 18·3 m.×134·4 m. (iii) 4. (iv) (a) 18·3 m.×2·8 m. (b) 17·7 m.×1·8 m. (v) 30 cm.×50 cm. (vi) Yes.

4. GENERAL :

(i) Below normal. (ii) No serious incidence of pests and diseases. (iii) Plant height, flower and boll count, no. of sympodia, halo length, ginning percent and yield of *kapas*. (iv) (a) 1964-Contd. (b) no. (c) Nil. (v) (a) Srivilliputtur, Coimbatore and Periyakulam with differences in treatments). (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 248 Kg/ha. (ii) (a) 65·2 Kg/ha. (b) 42·5 Kg/ha. (iii) Main effect of S is significant. (iv) Av. yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	R_1	R_2	N_0	N_1	P_0	P_1	Mean
D_1	223	251	263	249	242	244	247	239	252	246
D_2	240	248	262	244	256	246	254	247	253	250
Mean	232	249	262	247	249	245	250	243	252	248
P_0	227	253	249	245	241	240	246			
P_1	236	246	275	248	257	250	255			
N_0	228	245	262	244	246					
N_1	235	253	263	249	251					
R_1	247	240	253							
R_2	216	258	272							

C.D. for S marginal means=23·4 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- 61(24), 62(26), 63(11), 64(17).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'CM'.**

Object :— To find out the effects of optimum spacings and levels of N for Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereal. (b) Irunga *Cholam* (Fodder). (c) 112 Kg/ha. of urea and 125 Q/ha. of compost for 1961 and 1962 ;22·4 Kg/ha of N as urea+125 Q/ha. of compost for 1963 and 1964. (ii) Black soil. (iii) 28.10.61, 16.10.62, 4.11.63, 20.10.64. (iv) (a) 2 ploughings with country plough and working with guntaka once. (b) Dibbling in lines. (c) 12 to 20 Kg/ha. (d) As per treatments. (e) 2. (v) As per treatments. (vi) K-6 (Karunganni). (vii) Unirrigated. (viii) 2 thinnings, intercultures with *danthi* and 2 hand hoeings and weedings. (ix) 118 cm., 61 cm., 63 cm., 58 cm. (x) 2.3.1962 to 18.6.1962, 20.2.1963 to 20.6.1963, 21.3.1964 to 9.6.64, 22.2.1965 to 14.6.1965.

2. TREATMENTS :

Main-plot treatments :

3 levels of N as A/S : N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 3 spacings between plants : S_1=15·2, S_2=22·9 and S_3=30·5 cm.

(2) 2 spacings between rows : R_1=45·7 and R_2=61·0 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 6 sub-plots/main-plot. (b) 18·3 m.×65·8 m. (iii) 4. (iv) (a) 18·3 m.×3·7 m. (b) 17·7 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Not satisfactory. (ii) Nil. (iii) Yield of *Kapas.* (iv) (a) 1961—1964, (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances for main-plot and sub-plot for the years 61 and 62 are N.A.

5. RESULTS :

(i) 548 Kg/ha. (ii) (a) 180·6 Kg/ha. (based on 6 d.f. made up of interaction of treatment (N) with years). (b) 64·8 Kg/ha. (based on 33 d.f. made up of interaction of various components of treatment with years) (iii) Main effects of N, S and R are highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_1	N_2	N_3	R_1	R_2	Mean
S_1	517	646	638	638	563	600
S_2	495	605	585	576	548	562
S_3	419	488	539	545	419	482
Mean	477	580	587	586	510	548
R_1	501	618	640			
R_2	453	542	534			

C.D. for N marginal means=63·8 Kg/ha.
C.D. for S marginal means=48·4 Kg/ha.
C.D. for R marginal means=39·5 Kg/ha.

Years	N_1	N_2	N_3	Sig.	S_1	S_2	S_3	Sig.
1961	553	704	716	N.A.	692	659	622	N.A.
1962	785	940	941	N.A.	996	937	733	N.A.
1963	363	442	462	**	453	429	385	*
1964	208	234	231	N.S.	261	223	189	**
Pooled	477	580	587	**	600	562	482	**

Years	R_1	R_2	Sig.	G.M.	S.E./plot	
					Main-plot	Sub-plot
1961	692	623	N.A.	658	N.A.	N.A.
1962	968	809	N.A.	889	N.A.	N.A.
1963	437	408	*	422	56·4	51·3
1964	249	200	**	224	73·5	51·6
Pooled	586	510	**	548	180·6	64·8

Crop :- Cotton (*Summer*). **Ref :- T.N. 62(91), 63(107), 64(114).**

Site :- Agri. Res. Stn., Manapparai. **Type :- 'CM'.**

Object :— To study the effect of N, P and K on Cotton along with different spacings.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 75 C.L./ha. of F.Y.M.+ 112 Kg/ha. of G.N.C.+1120 Kg/ha. of G.L.M. (ii) Light loam. (iii) 8, 9.4.1962 ; 12.3.1963 ; 13 to 15.3.1964. (iv) (a) One ploughing and levelling. (b) Dibbling by hand. (c) As required by various treatments. (d) As per treatments. (e) 2. (v) Nil. (vi) P-216 F. (vii) Irrigated. (viii) Weedings and plant protection measures. (ix) 31 cm. ; 14 cm. ; 23 cm. (x) 5.7.62 to 3.8.62, 6.6.63 to 4.7.63, 11.6.64 to 16.7.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 2 row spacings : R_1=46 and R_2=61 cm.

(2) 2 plant spacings : S_1=15 and S_2=23 cm.

Sub-plot treatments :

All combinations of (1), (2) and (3).

(1) 3 levels of N as A/S : N_0=0, N_1=34 and N_2=68 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22 and P_2=44 Kg/ha.

(3) 2 levels of K_2O as Mur. Pot. : K_0=0, and K_1=50 Kg/ha.

N was applied in two equal doses : one thirty days and another sixty days after sowing, P_2O_5 and K_2O were applied at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 18 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 5·5 m. ×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of boll worms and jassids, controlled by spraying Parathion compounds. (iii) Yield of *Kapas*. (iv) (a) 1962-64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) Aduthurai. (b) Nil. (vi) Nil. (vii) Main-plot and Sub-plot error variances are heterogeneous.

5. RESULTS :

62(91)

(i) 2353 Kg/ha. (ii) (a) 1775·4 Kg/ha. (b) 453·1 Kg/ha. (iii) Main effects of N and interaction S×N are highly significant and that of P is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	2284	2563	2645	2395	2466	2632	2524	2471	2637	2358	2498
R_2	2038	2247	2339	2083	2332	2210	2169	2247	2201	2215	2208
Mean	2161	2405	2492	2239	2399	2421	2347	2359	2419	2287	2353
S_1	2148	2407	2701	2347	2493	2417	2414	2424			
S_2	2174	2403	2283	2130	2305	2425	2279	2294			
K_0	2151	2396	2493	2184	2432	2424					
K_1	2171	2415	2491	2294	2365	2418					
P_0	2044	2344	2328								
P_1	2157	2505	2534								
P_2	2283	2366	2614								

C.D. for N or P marginal means =128·2 Kg/ha.
C.D. for S means at the same level of N =493·7 Kg/ha.
C.D. for N means at the same level of S =181·3 Kg/ha.

63(107)

(i) 1032 Kg/ha. (ii) (a) 569·9 Kg/ha. (b) 163·8 Kg/ha. (iii) Main effect of N is highly significant. Interaction R×N is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	845	1095	1220	1031	1037	1092	1068	1038	1042	1064	1053
R_2	816	985	1234	1004	1028	1003	1011	1012	1032	992	1012
Mean	830	1040	1227	1017	1032	1047	1040	1025	1037	1028	1032
S_1	818	1053	1240	1005	1048	1057	1051	1023			
S_2	842	1028	1214	1029	1016	1038	1029	1027			
K_0	843	1049	1227	1000	1059	1061					
K_1	817	1032	1226	1035	1006	1034					
P_0	828	1025	1199								
P_1	809	1045	1243								
P_2	853	1051	1238								

C.D. for N marginal means =46·2 Kg/ha.
C.D. for N means at the same level of R =65·5 Kg/ha.
C.D. for R means at the same level of N =160·6 Kg/ha.

64(114)

(i) 1634 Kg/ha. (ii) (a) 1467·6 Kg/ha. (b) 299·8 Kg/ha. (iii) Main effect of N is highly significant and interaction R×K is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	S_1	S_2	Mean
R_1	1398	1629	1834	1705	1513	1643	1596	1645	1678	1563	1620
R_2	1417	1710	1816	1643	1657	1643	1700	1596	1844	1451	1648
Mean	1407	1670	1825	1675	1585	1643	1648	1620	1761	1507	1634
S_1	1550	1795	1937	1770	1743	1771	1769	1753			
S_2	1264	1544	1713	1579	1427	1515	1526	1488			
K_0	1367	1707	1869	1691	1551	1702					
K_1	1448	1632	1781	1658	1619	1584					
P_0	1422	1727	1875								
P_1	1408	1575	1772								
P_2	1392	1707	1829								

C.D. for N marginal means =84·9 Kg/ha.
C.D. for K means at the same level of R =98·0 Kg/ha.
C.D. for R means at the same level of K =395·4 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(174).**
Site :- Cotton Res. Stn., Periyakulam. **Type :- 'CM'.**

Object :— To determine suitable dates of sowing and spacings for Cotton and their inter-relationship with levels of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Black loam. (iii) As per treatments. (iv) (a) Three ploughings with country plough and forming beds. (b) Dibbling in lines. (c) 37 to 50 Kg/ha. (d) 61 cm. between rows. (e) 1. (v) 5610 Kg/ha. of F.Y.M. (vi) MCU-1 (winter combodia). (vii) Unirrigated. (viii) 3 weedings, first 30 days after sowing and then at intervals of 20 days. (ix) 55·9 cm. (x) 11.2.64 and onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).
(1) 2 dates of sowing : D_1=8.10.63 and D_2=18.10.63.
(2) 3 spacings between plants : S_1=11, S_2=15 and S_3=23 cm.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=28·1 and N_2=56·1 Kg/ha.
N applied—½ at the time of sowing and other ½ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) 7·6 m. × 109·8 m. (iii) 4. (iv) (a) 7·7 m. × 6·1 m. (b) 6·7 m. × 4·9 m. (v) 45 cm. × 60 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No incidence of pests and diseases. Spraying of Endrin once and Folidol four times as prophylactic measure. (ii) Height of plant, flower and boll counts, no. of sympodia, yield of *Kapas*. (iv) (a) 1963 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 163 Kg/ha. (ii) (a) 38·9 Kg/ha. (b) 43·8 Kg/ha. (iii) Main effect of D is highly significant. Main effect of N is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
D_1	183	194	166	160	180	202	181
D_2	145	147	145	132	152	154	146
Mean	164	170	155	146	166	178	163
N_0	137	157	143				
N_1	163	179	156				
N_2	191	175	167				

C.D. for D marginal means=19·6 Kg/ha.
C.D. for N marginal means=25·6 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(181).**

Site :- Cotton Res. Stn., Periyakulam. **Type :- 'CM'.**

Object :— To determine suitable dates of sowing and spacing for Cotton and their inter-relationship with levels of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) Similar experiment for the previous year was conducted in the land. (ii) Black loam. (iii) As per treatments. (iv) (a) 3 ploughings with country plough and forming of beds. (b) Dibbling in lines. (c) 37·5 to 50 Kg/ha. (d) 60 cm. between rows. (e) 1. (v) 34 Kg/ha. of P_2O_5 as Super and 10 Kg/ha. of K_2O as Mur. Pot. (vi) MCU-1 (winter combodia). (vii) Unirrigated. (viii) 3 weedings with hand hoes, first 30 days after sowing and then at intervals of 20 days. (ix) 83·5 cm. (x) 20.1.65 and onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 3 dates of sowing : D_1=5.9.64, D_2=14.10.64, and D_3=30.10.64.

(2) 3 spacings between plants : S_1=11, S_2=15 and S_3=23 cm.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=30 and N_2=60 Kg/ha.

N applied—½ at the time of sowing and other ½ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication ; 3 sub-plots/main-plot. (b) 7·6 m × 164·7 m. (iii) 4. (iv) (a) 7·6 m. × 6·1 m. (b) 6·7 m. × 4·9 m. (v) 45 cm. × 60 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of pests and diseases negligable. One Endrin spray and four Folidol sprays were given as prophylactic measure. (iii) Plant height, flower counts, ginning percentage and yield of *Kapas*. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 206 Kg/ha. (ii) (a) 134·2 Kg/ha. (b) 56·6 Kg/ha. (iii) Main effect of N is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
D_1	165	204	157	148	182	196	175
D_2	234	159	258	197	226	228	217
D_3	231	260	189	221	211	248	227
Mean	210	208	201	189	206	224	206
N_0	185	209	172				
N_1	215	191	213				
N_2	230	223	218				

C.D. for N marginal means=26·7 Kg/ha.

Crop :- Cotton (*Summer*). **Ref :- T.N. 63(168).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'CM'.**

Object :—To determine suitable dates of sowing and sprayings for Cotton and their inter-relationship with levels of Nitrogen.

1. BASAL CONDITIONS:

(i) (a) Paddy—Cotton. (b) Paddy. (c) 168 Kg/ha. of A/S+168 Kg/ha. of Super and 5600 Kg/ha. of G.M. (ii) Alluvial. (iii) As per treatments. (iv) (a) 2 ploughings with country plough and forming ridges of & furrows. (b) Dibbling in lines. (c) 22 Kg/ha. (d) 76 cm. between rows. (e) 1. (v) 126 Q/ha. of F.Y.M. (vi) MCU—2 (early). (vii) Irrigated. (viii) Weeding 15 days after sowing and then at 2 to 3 weeks interval. (ix) 25.3 cm. (x) June to August, 1963.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 dates of sowing : $D_1=15.3.63$ (normal sowing) and $D_2=30.3.63$ (late sowing).

(2) 3 spacings between plants : $S_1=15{\cdot}2$, $S_2=22{\cdot}9$ and $S_3=30$ 5 cm.

Sub-plot treatments :

3 levels of N as A/S : $N_0=0$, $N_1=44{\cdot}9$ and $N_2=89{\cdot}8$ Kg/ha.
N applied—$\frac{1}{2}$ at sowing and other $\frac{1}{2}$ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot. (b) 7·6 m.×115·2 m. (iii) 4. (iv) (a) 7·6 m.×6·4 m. (b) 6·1 m.×4·6 m. (v) 75 cm.×90 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (b) Incidence of boll worm, mites and blackarm. Spraying of Parathion 50% and dusting of B.H.C., D.D.T., Sevin and Sulphur were done. (iii) Plant height, flower and boll counts, no. of sympodia, yield of *kapas*, halo length and ginning percentage. (iv) (a) 1963—contd. (Treatments modified in 1964). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2201 Kg/ha. (ii) (a) 301·8 Kg/ha. (b) 289·7 Kg/ha. (iii) Main effect of D is highly significant and the main effect of N is significant. (iv) Av yield of *kapas* in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
D_1	2251	2490	2212	2058	2429	2465	2318
D_2	2220	2014	2018	2033	2126	2092	2084
Mean	2235	2252	2115	2046	2278	2279	2201
N_0	2112	2072	1953				
N_1	2359	2293	2182				
N_2	2235	2392	2209				

C.D. for D marginal means=151·5 Kg/ha.

C.D. for N marginal means=169·7 Kg/ha.

Crop :- Cotton (*Summer*). **Ref :- T.N. 64(172).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'CM'.**

Object :—To determine suitable dates of sowing and spacings for Cotton and their inter-relationship with level of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Paddy—Cotton. (b) Paddy. (c) 168 Kg/ha. of A/S and 168 Kg/ha of Super. (ii) Alluvium. (iii) As per treatments. (iv) (a) 3 ploughings with country plough and forming of ridges and furrows. (b) Dibbling in lines. (c) 22 Kg/ha. (d) 76 cm. between rows. (e) 1. (v) 17·9 Kg/ha. of P_2O_5 as Super and 40·3 Kg/ha. of K_2O as Mur. Pot. (vi) MCU—2. (vii) Irrigated. (viii) First weeding 15 days after sowing. Subsequent weedings and hoeings at intervals of 2 to 3 weeks afterwards. (ix) 26·8 cm. (x) 12.6.64 to 21.8.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 dates of sowing : D_1=20.2.64 (early sowing), D_2=6.3.64 (normal sowing) and D_3=21.3.64 (late sowing).

(2) 3 spacings between plants : S_1=15·2, S_2=22·9 and S_3=30·5 cm.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=56·1 and N_2=112·2 Kg/ha.

N applied—½ at sowing and other ½ at square initiation.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication; 3 sub-plots/main-plot. (b) 13·7 m.×102·6 m. (iii) 4. (iv) (a) 13·7 m.×3·8 m. (b) 11·9 m.×2·3 m. (v) 90 cm.×75 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Heavy incidence of boll worm and mites. Spraying of Parathion 50% and dusting of D.D.T., Sevin, etc. were done. (iii) Yield of *kapas*, height of plant, ginning percentage, seed and lint indices, no. of sympodia and flower count. (iv) (a) 1963—contd. (Treatments modified in 64). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1274 Kg/ha. (ii) (a) 270·1 Kg/ha. (b) 221·9 Kg/ha. (iii) Main effects of D and N are highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	D_1	D_2	D_3	N_0	N_1	N_2	Mean
S_1	1544	1225	1097	1143	1344	1379	1289
S_2	1548	1171	996	1084	1238	1393	1238
S_3	1492	1268	1130	1112	1383	1394	1296
Mean	1528	1221	1074	1113	1322	1389	1274
N_0	1306	988	1046				
N_1	1601	1299	1065				
N_2	1677	1378	1112				

C.D. for D marginal means=131·5 Kg/ha.
C.D. for N marginal means=104·9 Kg/ha.

Crop :- Cotton (*Kharif*). **Ref :- T.N. 64(225).**

Site :- I.A.R.I. Reg. Res. Centre, Coimbatore. **Type :- 'CMV'.**

Object :—To determine the optimum plant population (spacing) and levels of N for realising high yields of Russian variety of Cotton.

1. BASAL CONDITIONS :

(i)(a) Cotton—Sorghum/G.M. (b) and (c) N.A, (ii) Sandy loamy. (iii) 6.9.64 (iv) (a) 3 ploughings with iron plough, levelling with country leveller and forming ridges and furrows. (b) Dibbling by hand. (c) 20 Kg/ha. (d) and (e) As per treatments. (v) F.Y.M. at 5 tonnes/ha. P_2O_5 and K_2O at 40 Kg/ha. as Super and Mur. Pot. respectively. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings and hoeings. Working junior hoe and earthing up once with ridge plough. (ix) 30 cm. (x) January to 22.2.65 (for V_1) and January to 10.3.65 (for V_2).

2. TREATMENTS :

Main-plot treatments :

Two varieties : V_1=PRS—72 and V_2=MCU—3.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as Urea : N_1=40, N_2=80 and N_3=120 Kg/ha.

(2) 4 plant populations per hectare : P_1=55,000 (spacing 61 cm.×30 cm. with 1 plant per hill),
P_2=1,10,000 (spacing 61 cm.×30 cm. with 2 plants/hill),
P_3=1,65,000 (spacing 61 cm.×30 cm. with 3 plants/hill),
P_4=2,20,000 (spacing 61 cm.×15 cm. with 2 plants/hill).

N applied in two equal doses : ½ as basal dressing before sowing and half as top dressing 45 days after sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 6·0 m.×4·6 m. (b) 4·9 m.×4·0 m. (v) 61 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Germination severely affected by damping off disease. V_2 crop recovered and had satisfactory growth but V_1 crop had poor stand. (ii) Severe incidence of damping off disease. Seeds were treated with Agrosan and Ceresan as spray to young seedlings. Thus the disease was partly controlled. Boll worms attack was noted. Aldrin was applied in the soil before sowing and spraying of Endrin and Metasystox was done. (iii) No. and size of boll/plant and yield of *kapas*. (iv) (a) 1964 only.(b) & (c) Nil. (v) Nil. (vi) Unusual heavy rains at the flowering period of the crop. (vii) The actual populations recorded at harvest were 55,000, 1,10,000, 1,37,500 and 1,65,000 per ha. in scheduled spacings instead of 55,000, 1,10,000, 1,65,000 and 2,20,000 plants/ha. originally kept after thinning. This was perhaps due to more population of 3 plants per hill in P_3 and doses spacing (61 cm.×15 cm. with 2 plants/hill) in P which resulted in more mortality of seedlings.

5. RESULTS :

(i) 962 Kg/ha. (ii) (a) 90·7 Kg/ha. (b) 71·3 Kg/ha. (iii) Main effect of V and interaction V×N are highly significant and the main effect of P and Interaction V×P is significant. (iv) Av. yield of *kapas* in Kg/ha.

	P_1	P_2	P_3	P_4	V_1	V_2	Mean
N_1	902	1076	958	996	764	1202	983
N_2	828	1078	920	1030	794	1134	964
N_3	886	1049	907	914	782	1096	939
Mean	872	1068	928	980	780	1144	962
V_1	673	854	753	838			
V_2	1070	1281	1103	1121			

C.D. for V marginal means =92·1 Kg/ha.
C.D. for P marginal means =48·0 Kg/ha.
C.D. for N means at the same level of V=58·7 Kg/ha.
C.D. for V means at the same level of N=97·2 Kg/ha.
C.D. for P means at the same level of V=67·7 Kg/ha.
C.D. for V means at the same level of P =101·7 Kg/ha.

Crop :- Cotton (*Kharif*). **Ref :- T.N. 63, 64, 65(M.A.E).**

Site :- M.A.E. Centre, Bhavanisagar. Type :- 'IM'.

Object :—Type I :—To study the effect of different intensities and frequencies of irrigations along with different levels of N and P on the yield of Cotton.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loam. (iii) 21.9.63; 8.9.64, N.A. (iv) and (v) N.A. (vi) MCU–3, MCU—36 for 64 & 65 (vii) Irrigated. (viii) and (ix) N.A. (x) 26.2.64; N.A., N.A.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)
(1) 3 intensities of irrigations : $I_1=5·0$, $I_2=7·5$ and $I_3=10·0$ cm.
(2) 3 frequencies of irrigations : $F_1=2$, $F_2=3$ and $F_3=4$ irrigations.
(3) 3 levels of N as A/S : $N_0=0$, $N_1=60$ and $N_2=120$ Kg/ha.
(4) 3 levels or P_2O_5 as Super : $P_0=0$. $P_1=56$ and $P_2=112$ Kg/ha.
Frequencies of irrigations and levels of P_2O_5 for 64 and 65 are
$F_1=5$, $F_2=7$ and $F_3=9$ irrigations
$P_0=0$, $P_1=60$ and $P_2=120$ Kg/ha.

3. DESIGN :

(i) 3^4 Fact. confd. (ii) (a) 9 plots/block and 9 blocks/replication. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1963—66. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

1963

(i) 1198 Kg/ha. (ii) 159·2 Kg/ha. (iii) Main effect of N and interaction N×P are highly significant. Main effect of F is significant. (iv) Av. yield of *kapas* in Kg/ha.

	I_1	I_2	I_3	F_1	F_2	F_3	N_0	N_1	N_2	Mean
P_0	1068	1116	1262	1112	1104	1231	804	1325	1318	1149
P_1	1256	1187	1234	1128	1226	1324	868	1243	1566	1226
P_2	1171	1302	1184	1171	1222	1264	751	1242	1663	1219
Mean	1165	1202	1227	1137	1184	1273	808	1270	1516	1198
N_0	760	831	832	785	778	861				
N_1	1232	1342	1237	1145	1296	1369				
N_2	1502	1433	1612	1481	1478	1589				
F_1	1098	1171	1141							
F_2	1144	1192	1216							
F_3	1253	1243	1323							

C.D. for N or F marginal means = 89 0 Kg/ha.
C.D. for body of N × P table = 152·0 Kg/ha.

1964

(i) 528 Kg/ha. (ii) 93·0 Kg/ha. (iii) Main effects of F and N are highly significant. Interaction I × P, F × N and N × P are significant. (iv) Av. yield of *kapas* in Kg/ha.

	I_1	I_2	I_3	F_1	F_2	F_3	N_0	N_1	N_2	Mean
P_0	528	537	528	401	574	559	393	475	725	53
P_1	594	500	498	492	536	565	339	500	753	531
P_2	478	577	509	466	531	566	405	544	615	521
Mean	533	538	512	473	547	563	379	506	698	528
N_0	377	390	370	355	432	350				
N_1	527	505	486	487	485	546				
N_2	696	719	679	578	724	792				
F_1	481	476	463							
F_2	577	535	530							
F_3	542	603	543							

C.D. for F or N marginal means = 51·0 Kg/ha.
C.D. for body of I × P or F × N or N × P table = 89·0 Kg/ha.

1965

(i) 646 Kg/ha. (ii) 140·0 Kg/ha. (iii) Main effects of F and N are significant. (iv) Av. yield of *kapas* in Kg/ha.

	I_1	I_2	I_3	Mean
F_1	752	668	718	713
F_2	740	645	534	640
F_3	531	565	660	585
Mean	674	626	637	646

Treatment	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield	400	665	873	593	692	653

C.D. for F or N marginal means=109·0 Kg/ha.

Crop :- Cotton (*Main*). **Ref :- T.N. 62(132),63(186), 64(223), 65(32).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'IM'.**

Object :—To study the irrigation requirements under varying doses of manures for Cotton.

1. BASAL CONDITIONS :

(i) (a) *Ragi* or *Cholam*-Cotton. (b) *Ragi*. (c) 120 Q/ha. of F.Y.M.+45 Kg/ha. of A/S for 62(132); 120 Q/ha. of F.Y.M. for 63(186); 125 Q/ha. of F.Y.M. for 64(223), 65(32). (ii) Red clayey loam. (iii) 30.8.62, 1.10.63, 21.9.64, 30.9.65. (iv) (a) 2 ploughings+forming ridges and furrows. (b) Dibbling on the side of ridges. (c) 17 Kg/ha. (d) 60 cm.×20 cm. (e) 2. (v) 120 Q/ha. of F.Y.M. for 62(132); 50 Q/ha. of F.Y.M. for 63(186) 125 Q/ha. of F.Y.M. for 64(223), 65(32). (vi) MCU-3. (vii) As per treatments. (viii) 2 weedings, 2 earthings and hoeing (ix) 52 cm., 23 cm., 36 cm., 25 cm. (x) 21.1.63 to 25.4.63 ; 22.2.64 to 21.4.64 ; 25.2.65 to 28.4.65 ; 19.2.66 to 22.4.66.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : I_1=5, I_2=6·5 and I_3=8 cm.

Sub-plot treatments :

3 manurial treatments : M_1=40 Kg/ha. of N+20 Kg/ha. of P_2O_5+20 Kg/ha. of K_2O, M_2=54 Kg/ha. of N+27 Kg/ha. of P_2O_5+27 Kg/ha. of K_2O and M_3=67 Kg/ha. of N+33·5 Kg/ha. of P_2O_5+33·5 Kg/ha. of K_2O.

Irrigations were being done once in a fortnight.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 10·8 m.×4·0 m. (b) 10·0 m.×3·2 m. for 62(132), 63(186) ; (a) 10·0 m.×4·0 m. (b) 9·6 m.×3·6 m. for 64(223), 65(32). (v) 40 cm.×40 cm. for 62(132), 63(186) ; 20 cm.×20 cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Aphids and jassids were found for 62(132) and Folidol was sprayed once ; Aphids and boll worms were found for 63(186), 65(32) and Folidol was sprayed thrice. (iii) Yield of *kapas*. (iv) (a) 1962-1965. (b) and (c) No. (v) N.A. (vi) Nil. (vii) As the sub-plot error variances are heterogeneous, the results of individual years are presented below.

5. RESULTS :

62(132)

(i) 1878 Kg/ha. (ii) (a) 219·5 Kg/ha. (b) 231·3 Kg/ha. (iii) Main effect of M alone is highly significant. (iv) Av. yield of *kapas* in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	1736	1656	1971	1788
I_2	1811	1884	2026	1907
I_3	1903	1830	2087	1940
Mean	1817	1790	2028	1878

C.D. for M marginal means=157·4 Kg/ha.

63(186)

(i) 882 Kg/ha. (ii) (a) 159·1 Kg/ha. (b) 132·9 Kg/ha. (iii) Main effect of M is highly significant and interaction I × M is significant. (iv) Av. yield of *kapas* in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	815	906	978	900
I_2	808	922	941	890
I_3	670	763	1133	855
Mean	764	864	1017	882

C.D. for M marginal means =90·5 Kg/ha.

C.D. for M means at the same level of I=156·6 Kg/ha.

C.D. for I means at the same level of M=173·9 Kg/ha.

64(223)

(i) 731 Kg/ha. (ii) (a) 184·6 Kg/ha. (b) 207·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	617	718	702	679
I_2	757	748	759	755
I_3	835	714	730	760
Mean	736	727	730	731

65(32)

(i) 337 Kg/ha. (ii) (a) 125·2 Kg/ha. (b) 80·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

	M_1	M_2	M_3	Mean
I_1	402	354	318	358
I_2	319	363	356	346
I_3	295	328	295	306
Mean	393	348	323	337

Crop :- Cotton (*Main*). **Ref :- T.N. 60(62).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :—To find out the efficacy of antibiotics and fungicides against Blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil, (b) *Cholam.* (c) 123·6 Q/ha. of F.Y.M. (ii) Loam. (iii) 28.8.60. (iv) (a) ploughing, forming Ridges and furrows. (b) Dibbling in furrows. (c) 17 Kg/ha. (d) 76 cm.×23 cm. (e) 2. (v) 123·6 Q/ha. of F.Y.M. (vi) MCV–1. (vii) Irrigated. (viii) Thinning, gap filling, weeding, etc. (ix) N.A. (x) Picking completed during March, 61.

2. TREATMENTS :

8 fungicidal treatments : F_0=Control, F_1=Agri. strep–200 ppm., F_2=Phytomycin—100 ppm., F_3= Microcop 0·33%, F_5=Ferbam 0·5%, F_6=Ziram 2%, F_6=Dethane D-14 (5 gm. of Dethane+1 gm. of Zn.Sul./litre of water) and F_7=Bordeaux mixture 1%.

Spraying was done at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 7·6 m.×5·4 m. (b) 6·1 m.×4·9 m. (v) 76 cm.×24 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Observations were recorded on the disease incidence periodically just prior to each spray and final count before taking up first picking. (iv) (a) 1960 only. (b) No. (c) Nil. (v) Nil. (vi) The incidence of disease was found to be very low. (vii) Nil.

5. RESULTS :

(i) 1064 Kg/ha. (ii) 287·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7
Av. yield	970	894	1020	1147	1037	1161	997	1287

Crop :- Cotton (*Main*).

Ref :- T.N. 62(112).

Site :- Agri. Res. Stn., Bhavanisagar.

Type :- 'D'.

Object :—To assess the relative merits of certain fungicides, antibiotics and chemicals in the control of Blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) N.A. (ii) Loamy. (iii) 5.9.62. (iv) (a) 2 ploughings, Forming ridges and furrows, etc. (b) Dibbling. (c) 17 Kg/ha. (d) 75 cm.×23 cm. (e) 2. (v) 150 Q/ha. of F.Y.M. (vi) MCU-3. (vii) Irrigated. (viii) Gap filling, thinning and weeding. (ix) 48 cm. (x) 1.2.63 to 8.3.63.

2. TREATMENTS :

14 insecticidal treatments : T_0=Control, T_1=Bordeaux mixture 1% spray, T_2=Dithane Z-78 0·15% spray, T_3=Fytolan 0·25 % spray, T_4=Streptomycin 100 ppm spray, T_5=Microcop 0·3% spray, T_6=Dithane D-14 0·15% spray, T_7=Sulphur dust 22·4 Kg/ha, T_8=Hexacop 4% dust 22·4 Kg/ha., T_9=Dithane M-22 0·15% spray, T_{10}=Nickel chloride 10 ppm. spray, T_{11}=Hexacop 6% dust 22·4 Kg/ha., T_{12}=Folidol 0·05% spray and T_{13}=Folidol 0·05%+Bordeaux Mixture 1% spray.

Spraying with the above treatments in water given thrice at monthly intervals starting the first spraying 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20·2 Sqm. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Yield of *kapas*. (iv) (a) 1962-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 211 Kg/ha. (ii) 48·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	167	245	208	203	159	261	238
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
	218	221	227	213	192	209	192

Crop :- Cotton (*Main*). **Ref :- T.N. 63(21).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :—To assess the efficacy of antibiotics and fungicides in controlling the Blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 123·5 Q/ha. of F.Y.M. (ii) Red soil. (iii) 28.9.1963. (iv) (a) Ploughing, forming ridges and furrows etc. (b) Dibbling. (c) 17 Kg/ha. (d) 76 cm. × 23 cm. (e) 2. (v) 123·5 Q/ha. of F.Y.M. (vi) MCU-3. (vii) Irrigated. (viii) Thinning, gap filling and weeding etc. (ix) N.A. (x) 14.2.64 to 10.4.64.

2. TREATMENTS :

12 fungicides : F_0=Control, F_1=Bordeaux mixture 1%, F_2=Fytolan 0·25%, F_3=Sulphur dust 21·6 Kg/ha., F_4=Sulphur wettable 0·5%, F_5=Dethane M_{22} 0·15%, F_6=Streptomycin Sulphate 100 ppm., F_7=Nickel Chloride 10 ppm., F_8=Dethane Z-78 0·15%, F_9=Hexacop 6% dust 21 Kg/ha., F_{10}=Dethane D-14 0·05% and F_{11}=Neem cake infusion 0·5%.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 6·1 m. × 3·8 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Observations on the incidence of disease prior to and after the application of treatments and yield of *Kapas* (iv) (a) 1963 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1071 Kg/ha. (ii) 304·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5
Av. yield	759	1271	1131	1051	1097	900
	F_6	F_7	F_8	F_9	F_{10}	F_{11}
	1666	1126	896	1047	894	1271

Crop :- Cotton (*Main*). **Ref :-T.N. 62(170)**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :—To test the efficacy of various seed dressing fungicides for the control of Blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 100 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) 8.9.62. (iv) (a) 2 ploughings. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 60 cm.×23 cm. (e) 2. (v) 100 Q/ha. of F.Y.M. (vi) MCU – 3. (vii) Unirrigated. (viii) 2 weedings and earthing up. (ix) 52 cm. (x) 22.1.63 to 5.3.63.

2. TREATMENTS :

10 fungicidal treatmeats : T_0=Control, T_1=Agrosan G.N. 0·28%, T_2=Agrosan S.W. 0·18%, T_3=Cerenox 0.6%, T_4=Spergon 0·25%, T_5=Tillex 0·22%, T_6=Flit 406 0·2%, T_7=Cerenox dry 0·33%, T_8=2% Ceresan 0·22% and T_9=Dow 9 B 0·2%,

The seeds were treated in the respective chemicals @ 1 Kg. of chemical per 10 to 12 Kg. of seeds for about 15 minutes and then dried and Sown.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 13·4 m.×4·6 m. (b) 12·2 m.×3·7 m. (v) 61 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Very good. (ii) (Mild infestation of blackarm) As per treatments. (iii) Infection count and yield of *kapas*. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of Kapas.

(i) 2694 Kg/ha. (ii) 335 0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	2534	2781	2583	2635	2583	2594	2639	3072	2938	2585

Infection count of black arm

(i) 10·1. (ii) 2·55. (iii) Treatment differences are not significant. (iv) Mean count of blackarm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean	12·25	8·75	10·25	9·25	10·50	10·75	10·00	9·75	10·50	9 00

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(228).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :—To test the efficacy of various seed dressing fungicides for the control of Blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 100 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) 5.10.63. (iv) (a) 2 ploughings. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 60 cm.×23 cm. (e) 2. (v) 100 Q/ha. of F.Y.M. (vi) MCU 3. (vii) Unirrigated, (viii) 2 weedings and earthing up. (ix) 30 cm. (x) 20.2.64 to 24.4.64.

2. TREATMENTS :

9 fungicidal treatments : T_0=Control, T_1=Agrosan G.N. 0·28%, 2·8 gm/Kg. of seed, T_2=Agrosan S.W 0·18%, 1·8 gm/Kg. of seed, T_3=Spergon 0·25%, 2·5 gm/Kg. of seed, T_4=Tillex 0·22%, 2·2 gm/Kg. of seed, T_5=Flit 406 0·2%, 2 gm/Kg. of seed, T_6=Ceresan dry 0·33%, 3·3 gm/Kg. of seed, T_7=2% Ceresan 0·2%, 2 gm/Kg of seed and T_8=Dow. 9. B 0·2%, 2 gm/Kg. of seed.

The seeds were treated in the respective chemicals for about 15 minutes and dried and sown.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 13·4 m. × 4·6 m. (b) 12·2 m. × 3·7 m. (v) 61 cm. × 46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infection count and yield of *kapas*. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield or Kapas

(i) 790 Kg/ha. (ii) 217 3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	677	719	810	926	770	718	871	923	698

Infection count in numbers

(i) 19·4. (ii) 2 04. (iii) Treatment differences are highly significant. (iv) Mean count of blackarm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T^8
Av. yield	25·0	18·0	19·0	17·0	21·0	20 0	16 0	18·0	21 0

C.D.=2·97 counts of blackarm.

Crop :- Cotton (*Mansoon*). **Ref :- T.N. 62(74).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of fungicides in controlling boll worm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 1.9.62. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 15 Kg/ha. (d) 60 cm. × 25 cm. (e) 2. (v) 56 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) MCU—3. (vii) Irrigated. (viii) 2 weedings. (ix) 48 cm. (x) 6 pickings in Feb. and March 1963.

2. TREATMENTS :

8 insecticidal treatments : I_0=Control, I_1=W.L. 1650, 0·015% spray, I_2=W L. 1650, 0·02% spray, I_3=W.L. 1650, 0·03% spray, I_4=Parathion, 0·025% spray, I_5=Endrin, 0·02% spray, I_6=Sayfos, 0·03% spray and I_7=Carboryl, 0·1% spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 8·5 m. × 6·7 m. (b) 6·1 m. × 4·9 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infestation by boll worm were recorded each time before spraying and yield of *kapas*. (iv) (a) 1962—64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2399 Kg/ha. (ii) 423·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
Av. yield	2095	2223	2466	2531	2338	2643	2423	2474

Crop :- Cotton (*Monsoon*). **Ref :- T.N. 63(95).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of fungicides in controlling boll worm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) Loamy. (iii) 28.8.63. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 16 Kg/ha. (d) 30 cm. × 30cm.(e) 1. (v) 56 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) MCU—3. (vii) Irrigated. (viii) 2 weedings. (ix) 26 cm. (x) Feb. and March, 64. (6 pickings).

2. TREATMENTS :

6 insecticides : I_0=Control, I_1=Parathion 0·025%+D.D.T. 0·1%, I_2=Parathion 0·025%+Endrin 0·02%, I_3=Endrin 0·02%+D.D.T. 0·1%, I_4=Parathion 0·025%+Carboryl 0·1% and I_5=Endrin 0·02%+Carboryl 0·1%.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 7·3 m. × 6·7 m. (b) 6·1 m. × 5·5 m. (v) 61 cm. × 61 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Counts of boll worms were recorded and yield of *kapas*. (iv) (a) 1962—64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1856 Kg/ha. (ii) 218·8 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5
Av. yield	1518	1983	1809	1934	1875	2015

C.D.=329·7 Kg/ha.

Crop :- Cotton (*Monsoon*). **Ref :- T N. 64(103).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object : — To study the effects of fungicides in controlling boll worm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 56 Q/ha. of F.Y M. and 112 Kg/ha. of A/S. (ii) Loamy. (iii) Sept , 1964 (Exact date is N.A.). (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 45 cm.× 22 cm. (e) 1. (v) 56 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings. (ix) 35 cm. (x) 6 pickings in Feb. and March '65.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Methyl Parathion+D.D.T. 5 litres/250 gallon/ha. T_2=Endrin 0·02%+D.D.T. 0·1%, T_3=Parathion 0·025%+Endrin 0·02%, T_4=Endrin 0·02% +Carboryl 0·1%, T_5=Carboryl 0·1%+Parathion 0·025%, T_6=Carboryl+Demecron dust (50 : 1) and T_7=Carboryl 0·1%+Demecron 0·05% spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 7·6 m.×7·0 m. (b) 6·7 m.×6·1 m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Counts were recorded on the total no. of bolls and affected bolls and yield of *kapas*. (iv) (a) 1962-64. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 386 Kg/ha. (ii) 129·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	178	454	333	418	518	333	369	482

Crop :- Cotton (*Main*). **Ref :- T N. 60(81), 61(49).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object : — To assess the efficiency of antibiotics and fungicides in controlling the blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 5600 Kg/ha. of F.Y.M. (ii) Black loam. (iii) 6.9.60 ; 20.9.61 (iv) (a) 3 ploughings and levelling. (b) Dibbling in lines by hand. (c) 15 Kg/ha. (d) 60 cm.×23 cm. (e) 2. (v) 56 Q/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) MCU-1. (vii) Irrigated. (viii) 3 weedings for 60 (81) and 2 weedings for 61 (49). (ix) 45 cm. ; 28 cm. (x) 17.1.61 to 26.4.61 ; 6 pickings in Feb. and March, 62.

2. TREATMENTS :

7 insecticidal treatments : I_0=Control, I_1=Parathion ·025% spray 3 rounds, I_2=Parathion ·025% spray 4 rounds, I_3=Endrin 0·02% spray 3 rounds, I_4=Endrin 0·02% spray 4 rounds, I_5=P. 1250—0·5% spray 3 rounds and I_6=P. 1250—0·5% spray 4 rounds.

3. DESIGN :

(i) R B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 10·4 m. × 5·8 m. for 60 (81) and 9·1 m. × 6·1 m. for 61 (49). (b) 9·1 m. × 4·6 m. for 60 (81) and 7·9 m. × 4·9 m. for 61 (49). (v) 61 cm. × 61 cm. for 60 (81) and 61 (49). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infestation counts and yield of *Kapas*. (iv) (a) 1960-61. (b) No. (c) Results of combined analysis given under 5. Results. (v) and (vi) Nil. (vii) Since the error variances are N.A. Treatments × years interaction is taken as the error.

5. RESULTS :

(i) 958 Kg/ha. (ii) 202·7 Kg/ha. (6 d.f. made up of Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	726	1070	1102	1239	1048	766	752

Years	I_0	I_1	I_2	I_3	I_4	I_5	I_6	Sig.	G.M.	S.E./plot.
1960	664	863	1105	810	860	557	690	*	793	N.A.
1961	789	1277	1099	1668	1236	975	814	N.S.	1123	N.A.
Pooled	726	1070	1102	1239	1048	766	752	N.S.	958	202·7

Crop :- Cotton (*Main*). **Ref :- T.N. 60(63).**

Site :- Agri. College and Res. Instt. Coimbatore. **Type :- 'D'.**

Object :— To test the efficacy of various fungicides and antibiotics for the control of blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ragi*. (c) 123·6 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (ii) Loam. (iii) 25.9.60. (iv) (a) Ploughing, forming ridges and furrows. (b) Dibbling in furrows. (c) 16 8 Kg/ha. (d) 76 cm. × 23 cm. (e) 2. (v) 22 4 Q/ha. of F.Y.M. (vi) MCU-1. (vii) Irrigated. (viii) Thinning, gap-filling, weeding., etc. (ix) N.A. (x) Pickings were completed during the months of March and April, '61.

2. TREATMENTS :

8 insecticides : I_0=Control, I_1=Agristrep 220 ppm I_2=Phytomycin 100 ppm, I_3=Bordeaux mixture 0·33%, I_4=Micrococp 0·33%, I_5=Ferbam 0·50%, I_6=Ziram 2% and I_7=Dithane D. 14 (5 gm. of Dithane+1 gm. of $ZnSO_4$/litre of water).

Sprayings were done at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 7·3 m. × 3·6 m. (b) 6·1 m. × 3·1 m. (v) 58 cm. × 23 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Meagre incidence of blackarm. (iii) Observations were recorded on the disease incidence periodically just prior to each spray and final count before taking first picking. (iv) (a) 1960-contd. (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 754 Kg/ha. (ii) 157·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
Av. yield	523	797	751	854	820	721	671	893

Crop :- Cotton (*Main*). **Ref :- T.N. 61(76).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To test the efficacy of different fungicides and antibiotics in controlling blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) N.A. (ii) Loamy. (iii) 19.9.61. (iv) (a) 2 ploughings with Victory plough, forming ridges and furrows. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 75 cm.×23 cm. (e) 2. (v) 125 Q/ha. of F.Y.M. (vi) MCU-1. (vii) Irrigated. (viii) Thinning, gap-filling, and weeding. (ix) 28 cm. (x) 9.2.62 to 30.3.62.

2. TREATMENTS :

14 insecticides : I_0=Control, I_1=Agristrep 200 ppm, I_2=Phytomycin 100 ppm, I_3=Mycostatin 200 ppm, I_4=Mycrocop $\frac{1}{2}$ Kg. in 150 litres of water, I_5=Ferban $\frac{1}{2}$ Kg. in 100 litres of water, I_6=Ziram 1 Kg. in 500 litres of water, I_7=Dithane D. 14—2·3 Kg. in 450 litres of water, I_8=Dithane Z. 78—0·6 Kg. in 450 litres of water, I_9=Sulphur dust 22 Kg/ha., I_{10}=Bordeaux Mixture 1%, I_{11}=B.M. 1%+Folidol 100 cc in 180 litres of water, I_{12}=Folidol 100 cc in 180 litres of water, I_{13}=Water spray.

Sprayings with the above treatments in water were given thrice at monthly intervals starting the 1st spraying 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 13·5 Sq. metres (Exact dimension are not available). (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Disease incidence and yield of *Kapas.* (iv) (a) 1960-contd (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 543 Kg/ha. (ii) 180·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	435	507	699	456	567	606	589
	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}	I_{13}
	455	570	477	715	370	684	470

Crop :- Cotton (*Monsoon*). **Ref :- T.N. 62(73).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object:— To assess the efficiency of antibiotics and fungicides in controlling the blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) N.A. (ii) Loamy. (iii) 27.8.62. (iv) (a) 3 ploughings and levelling. (b) Dibbling in lines by hand. (c) 15 Kg/ha. (d) 60 cm.×22 cm. (e) 2. (v) 56 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings. (ix) 48 cm. (x) 6 pickings in Feb.—March, 1963.

2. TREATMENTS :

9 insecticides : I_0=Control, I_1=Parathion 0·025% spray 3 rounds, I_2=Parathion 0·025% spray 4 rounds, I_3=Endrin 0·02% spray 3 rounds, I_4=Endrin 0·02% spray 4 rounds, I_5=Thiomoton 0·1% spray 3 rounds, I_6=Thiomoton 0·1% spray 4 rounds, I_7=Carboryl 0·1% spray 3 rounds and I_8=Carboryl 0·1% spray 4 rounds.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 8·5 m.×6·7 m. (b) 6·1 m.×4·9 m. (v) 122 cm.×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Pest population, no. of affected bolls, etc. were recorded regularly and yield of *Kapas*. (iv) (a) 1960-64 (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2486 Kg/ha. (ii) 344·1 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8
Av. yield	1992	2185	2329	2547	2817	2626	2528	2571	2779

C.D.=502·0 Kg/ha.

Crop :- Cotton (*Monsoon*). **Ref :- T.N. 63(94).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To study the effect of fungicides in controlling boll worm disease of Cotton.

1 BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 14.8.63. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 15 Kg/ha. (d) 60 cm.×23 cm. (e) 1. (v) 5600 Kg/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings. (ix) 27 cm. (x) March, 1964 (5 pickings).

2. TREATMENTS :

10 insecticides : I_0=Control, I_1=Parathion 0·025% 3 rounds, I_2=Parathion 0·025% 4 rounds, I_3=Endrin 0·02% 3 rounds, I_4=Endrin 0·02% 4 rounds, I_5=Ekatin 0·1% 3 rounds, I_6=Ekatin 0·1% 4 rounds, I_7=Carboryl 0·1% 3 rounds, I_8=Carboryl 0·1% 4 rounds and I_9=Parathion+Endrin 4 rounds.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 6·7 m.×5·5 m. (b) 5·5 m.×4·9 m. (v) 61 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Counts on the population of aphids, jassids and thribs were recorded regularly. (iv) (a) 1960—64 (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3250 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9
Av. yield	2634	2963	3373	3556	3339	3088	2362	3663	3681	2939

Crop :- Cotton (*Main*). **Ref :- T.N. 64(84).**

Site :- (Private farm) Sembagaputhur, Caimbatore Distt. **Type :- 'D'.**

Object :— To assess the efficacy of antibiotics and fungicides in controlling the blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 22·4 tons/ha. of F.Y.M. (ii) Sandy loam. (iii) 9·10.64. (iv) (a) Ploughing, forming ridgs and furrows etc. (b) Dibbling. (c) 16·8 Kg/ha. (d) 76 cm. × 23 cm. (e) 2: (v) 12·4 tons/ha. of F.Y.M. (vi) MCU-1. (vii) Irrigated. (viii) Gap-filling, thinning and weeding etc. (ix) N.A. (x) 1.3.65 to 7.4,65.

2. TREATMENTS :

14 insecticides : I_0=Control, I_1=Bordeaux mixture 1%, I_2=Fytolan 0·25%, I_3=Sulphur dust 21·6 Kg/ha., I_4=Wet Sulphur 0·5%, I_5=Streptomycin Sulphate 100 ppm, I_6=Streptomycin Sulphur 50 ppm, I_7=Aureomycin 50 ppm, I_8=Nickel Chloride 10 ppm., I_9=Dithane M_{22} 0·15%, I_{10}=Dithane Z.78—0·15%, I_{11}=Hexacop 6% 21·6 Kg/ha., I_{12}=Flit 406—0·2% and I_{13}= Neem cake infusion 0·5%.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 5·5 m. × 3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Observations on the incidence of disease were recorded prior to and after the application of the treatments. (iv) (a) 1963-65. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 526 Kg/ha. (ii) 83·0 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	467	605	494	507	613	734	474
	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}	I_{13}
	591	467	482	507	482	469	479

C.D.=118·7 Kg/ha.

Crop :- Cotton (*Main*). **Ref :- T.N. 63(22), 64(23).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :— To assess the efficacy of antibiotics and fungicides in controlling the blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam.* (c) 124 Q/ha. of F.Y.M. (ii) Loam. (iii) 19.8.63, 19.9.64. (iv) (a) Ploughing, forming ridges. (b) Dibbling (c) 16·8 Kg/ha. (d) 76 cm. × 23 cm. (e) 2. (v) 124 Q/ha. of F.Y.M. (vi) MCU-3. (vii) Irrigated. (viii) Weeding and thinning. (ix) 27 cm. ; 35 cm. (x) 27.12.63 to 10 2.64. and 20.2.65 to 23.4.65.

2. TREATMENTS :

12 antibiotics and fungicides : T_0=Control, T_1=Bordeaux mixture 1%, T_2=Fytolan 0·25%, T_3=Sulphur dust 21·6 Kg/ha., T_4=Wet Sulphur 0·5%, T_5=Dithane M_{22} 0·15%, T_6= Streptomycin Sulphate 100 ppm, T_7=Nickel Chloride 10 ppm, T_8=Dithane Z.78—0·15%, T_9=Hexacop 6% dust 21·6 Kg/ha., T_{10}=Flit 406—0·2% and T_{11}=Neem Cake infusion 0·5%.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 5·5 m. × 3·8 m. (b) 5·5 m. × 3·8 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Yield of *Kapas.* (iv) (a) 1963–1964. (b) No. (v) and (vi) Nil. (vii) Error variances are heterogenous and Treatments × years interaction is absent. Results of individual years are presented below.

5. RESULTS :

63(22)

(i) 1030 Kg/ha. (ii) 126·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	988	1060	1025	890	1053	974
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	1124	1127	1055	983	1085	998

64(23)

(i) 754 Kg/ha. (ii) 185·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	682	692	773	722	811	712
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	838	840	704	682	833	761

Crop :- Cotton (*Main*). **Ref :- T.N. 65(27).**

Site :- (Private Garden) Sembagaputhur, Coimbatore Distt. **Type :- 'D'.**

Object :—To test the efficacy of various seed dressing fungicides for the control of blackarm disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Black soil. (iii) 15.10.65. (iv) (a) 2 ploughings, forming ridges and furrows. (b) Dibbling. (c) 17 Kg/ha. (d) 60 cm. × 23 cm. (e) 2. (v) 125 Q/ha. of F.Y.M. (vi) MCU-1. (vii) Irrigated. (viii) Gap filling, thinning and weeding. (ix) N.A. (x) 23.2.66 to 6.4.66.

2. TREATMENTS :

10 fungicidal treatments : T_0=Control, T_1=Streptomycin Sulphate 500 p.p.m., T_2=Sulphuric acid delinking 1 Kg/11 Kg. of seeds, T_3=Agrosan G.N. 0·28%, T_4=Ceresan dry 0·33%, T_5=Flit 406—0·2%, T_6=Thiram 0·41%, T_7=Ferbam 0·41%, T_8=Zinc cop 0·41% and T_9=Cuman 0·41%.

The seed tubers were treated in the respective chemicals for about 15 minutes and then sown.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 5·5 m. × 3·7 m. (b) 4·3 m. × 3·2 m. (v) 61 cm. × 23·6m. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Under srudy. (iii) Germination count, disease incidence and yield of *kapas.* (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 992 Kg/ha. (ii) 202·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	909	964	945	1091	972	1113	946	1121	827	1035

Crop :- Cotton (*Main*). **Ref :- T.N. 65(26).**

Site :- (Private garden), Sembagaputhur, Coimbatore Distt. **Type :- 'D'.**

Object :—To assess the relative merits of certain fungicides and antibiotics for the control of blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton (c) N.A. (ii) (a) Black soil. (b) N.A. (iii) 27.9.65 (iv) (a) 2 ploughings, forming ridges and furrows. (b) Dibbling. (c) 17 Kg/ha. (d) 75 cm. × 23 cm. (e) 2. (v) 12·5 M. tonnes/ha. of F.Y.M. (vi) MCU 1. (vii) Irrigated once in 10 days. (viii) Thinning, weeding and gap-filling. (ix) Not available (private gardens). (x) 29.1.66 to 11.3.66.

2. TREATMENTS :

12 fungicidal treatments : T_0=Control, T_1=Streptomycin Sulphate (chemical) 100 ppm., T_2=Non-steril Streptomycin Sulphate 100 ppm., T_3=Non-steril streptomycin 200 ppm, T_4=Streptochlor 25 ppm., T_5=Bord. Mixture 1%, T_6=Fytolan 0·25%, T_7=Wet Sulphur 0·5%, T_8=Dithane Z-78—0·15%, T_9=Hexacop 6% dust 21·6 Kg/ha., T_{10}=Malprex Iodine 0·05%, T_{11}=Neem cake infusion 0·5%.

The spray fluids were applied at the rate of 1120 litres/ha. 3 sprayings were given at monthly intervals. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) 12. (b) N.A. (iii) 4. (iv) (a) 8·1 m. × 3·7 m. (b) 7·6 m. × 2·1 m. (v) 23 cm. × 76 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Disease indices and yield. (iv) (a) Not continued. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 1195 Kg/ha. (ii) 185·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	970	1292	1217	1369	1217	1292
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	1230	1060	1292	1103	1153	1150

Disease indices

(i) 57·7. (ii) 1·50. (iii) Treatment differences are highly significant. (iv) Mean disease indices

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. indices	85·0	34·0	49·0	30·0	51·0	37·0
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	60·0	67·0	74·0	76·0	52·0	77·0

C.D. = 2·16

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(163), 64(176).**

Site :- Agri. College Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To determine a suitable method of controlling weeds in Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton-Cereals. (b) For 1963-Jowar, Nil for 1964. (c) Nil. (ii) Black loam. (iii) 15.9.63, 15.9.64. (iv) (a) 3 ploughings, forming ridges and furrows. (b) Dibbling by hand. (c) 25 Kg/ha. (d) 76·2 cm. × 23 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. and 18 Kg/ha. of P_2O_5. (vi) MCU-3 for 63, MCU-1 for 64. (vii) Irrigated. (viii) As per treatments. (ix) 26 cm. (x) 12.3.64, 12.3.65.

2. TREATMENTS :

5 methods of weedings : T_0=Control (unweeded), T_1=Localmethod with hand hoe., T_2=Preemergence application of 1·7 Kg/ha. of acid as sodium salt of 2, 4-D, applied in 900 litres of water 4 days before sowing, T_3=Pre-emergence application of weedicide+cultural method of weeding; and T_4=Cultural method of weeding once with implement and once by hand hoe.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 7·6 m. × 33·6 m. (iii) 4. (iv) (a) 7·6 m. × 6·7 m. (b) 6·1 m. × 6·2 m. for 63 6·1 m. × 5·8 m. for 1964 (v) One row lengthwise, 2 rows breadthwise. (vi) Yes.

4. GENERAL :

(i) Germination was poor in plots with 2, 4-D application. (ii) Incidence of jassids and aphids and boll worm. Spraying of Endrin and Folidol and Sevin dusting. (iii) *Kapas* yield. (iv) (a) 1963—64 (b) No. (c) Nil. (v) Periyakulam, Koilpatti, Srivilliputtur. (vi) Nil (vii) Error variances are homogeneous and Treatments × years interaction is present.

1. RESULTS :

(i) 392 Kg/ha. (ii) 397·6 Kg/ha. [based on 4 d.f. made up of interaction of treatments with years]. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	114	722	130	374	618

Years	T_0	T_1	T_2	T_3	T_4	Significance	G.M.	S.E./plot
1963	46	809	40	121	700	**	343	122·4
1964	183	635	221	626	537	**	440	148·2
Pooled	114	722	130	374	618	N.S.	392	397·6

Crop :- Cotton (*Main*). **Ref :- T.N. 60(30).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical spraying on yield and control of boll worm of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Black soil. (iii) 24, 25.9.60. (iv) (a) 3 ploughings. (b) and (c) N.A. (d) 6·5 cm.×4·0 cm. (e) N.A. (v) 12·5 tonnes/ha. of F.Y.M. (vi) MCU-1. (vii) Irrigated. (viii) Weeding and interculture once. (ix) N.A. (x) 20.2.61 to 29.4.61.

2. TREATMENTS :

All combinations of (1), (2) and (3)+2 extra treatments.

(1) 4 chemicals : C_1=Metasystox, C_2=Systox, C_3=Pestox and C_4=Ekatin.
(2) 2 methods of application : M_1=Spray and M_2=Through irrigation.
(3) 2 doses of chemicals : D_1=0·2% and D_2=0·1%.

T_1=Water spray and T_2=Control.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 9·1 m.×5·5 m. (b) 7·6 m.×4·6 m. (v) 76 cm.× 46 cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *Kapas*. (iv) (a) 1958-contd. (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 1426 Kg/ha. (ii) 237·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

T_1=1491 and T_2=1340 Kg/ha.

	C_1	C_2	C_3	C_4	D_1	D_2	Mean
M_1	1473	1399	1338	1264	1392	1345	1368
M_2	1446	1524	1417	1562	1453	1522	1487
Mean	1459	1461	1377	1413	1422	1434	1428
D_1	1480	1423	1303	1483			
D_2	1439	1500	1451	1344			

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(186).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the efficacy of nematicides in controlling nematodes of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) N.A. (ii) Red soil. (ii) 26.9.64. (iv) (a) 3 ploughings with country plough, one with hand plough and levelling with levelling board. (b) Dibbling in lines. (c) 28 Kg/ha. (d) 23 cm.× 76 cm. (e) 2. (v) 45 Kg/ha. of N+16·8 Kg/ha. of P_2O_5 and 16·8 Kg/ha. of K_2O. (vi) MCU-1. (vii) Irrigated. (viii) 2 hand weedings, 1 hand hoeing and 1 earthing up with mummuthy. (ix) 51·6 cm (x) 27.5.65.

2. TREATMENTS :

5 nematicidal treatments : T_0=Control, T_1=280 litres/ha. of D.D. before sowing by soil injection, T_2= 320 Kg/ha. of EDB before sowing by soil dibbling, T_3=36 litres/ha. of DBCP before sowing and 18 litres/ha. after sowing mixed with irrigation water and T_4= D.B.C.P. as seed treatment material.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 30·5 m.×7·0 m. (iii) 6. (iv) (a) 7·0 m.×5·8 m. (b) 6·1 m.×4·9 m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of boll worm and jassids was in a very mild form. (iii) Population of nematodes, plant height and yield of *Kapas*. (iv) (a) 1964-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 218 Kg/ha. (ii) 80·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	271	262	202	190	163

Crop :- Cotton (*Monsoon*). **Ref :- T.N. 61(50), 62(75).**

Site :- Agri. College and Res. Instt., Coimbatore. Type :- 'D'.

Object :—To test the comparative efficiency of proprietory and other insecticides for controlling jassids of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton for 61(50) ; *Cholam* for 62(75). (c) 5600 Kg/ha. of F.Y.M. (ii) Loamy for 61(50) ; Red loam for 62(75). (iii) 3.8.61 ; 15.8.62. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 15 Kg/ha. (d) 60 cm.×23 cm. (e) 2. (v) 5600 Kg/ha. of F.Y.M.+112 Kg/ha. of A/S. (vi) MCU-3. (vii) Irrigated. (viii) 2 weedings. (ix) 31 cm., 49 cm. (x) 6 pickings in Feb.—March, 1962 ; 5 pickings in Feb.—March, '63.

2. TREATMENTS :

5 insecticides : I_0=Control, I_1=Endrin 0·02%, I_2=P-1250—0·6%, I_3=Parathion 0·025% and I_4=D.D.T. 0·1%.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4 for 61(50) ; 5 for 62(75). (iv) (a) 9·1 m.×6·1 m. for 61(50) ; 8·5 m.×7·3 m. for 62(75). (b) 7·3 m.×4·6 m. for 61(50) ; 6·1 m.×5·5 m. for 62(75). (v) 91 cm.×76 cm. for 61(50), 122 cm.×91 cm. for 62(75). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Yield of *Kapas*. (iv) (a) 1961-1962. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

61(50)

(i) 1327 Kg/ha. (ii) 287·3 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	1076	1849	1221	1177	1311

C.D.=442·7 Kg/ha.

62(75)

(i) 1831 Kg/ha. (ii) 168·9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4
Av. yield	1647	2181	1706	1835	1786

C.D.=226·4 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 62(67).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical defoliants on yield and fibre properties of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—*Cholam* (regular). (b) *Sunhemp*. (c) Nil. (ii) Red loam. (iii) 29.8.62. (iv) (a) 3 ploughings, working junior hoe and levelling. (b) Dibbling by hand. (c) 11 Kg/ha. (d) 76 cm.×23 cm. (e) 2. (v) 16·8 Kg/ha. of P_2O_5, 16·8 Kg/ha. of K_2O as basal dressing and 44·8 Kg/ha. of N as top dressing. (vi) MCU—1. (vii) Irrigated. (viii) 3 weedings, hoeing and interculturing. (ix) 45·2 cm. (x) 15.1.63 to 15.3.63.

2. TREATMENTS :

7 chemical treatments : T_0=Control (untreated), T_1=Clipping of leaves by hand, T_2=Calcium Cynamide 44·8 Kg/ha. (dusting), T_3=Calcium Cynamide 50·4 Kg/ha. (dusting), T_4=Calcium Cynamide 56 0 Kg/ha.(dusting), T_5=Pentachlorophenol 1·12 Kg/ha. (spraying) and T_6=Pentachlorophenol 2·24 Kg/ha. (spraying).

The crop was treated at the time of strong boll cracking.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 6·4 m.×32·0 m. (iii) 4. (iv) (a) 6·4 m.×4·6 m. (b) 6·4 m.×3·1 m. (v) 76 cm. on either side along breath. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of boll worms. Spraying of Parathion compounds was done. (iii) Yield of *Kapas*. (iv) (a) 1962 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 807 Kg/ha. (ii) 188·9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	885	664	717	846	701	1132	704

C.D.=280·6 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(89), 64(100).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effect of chemical defoliants on the yield and fibre properties of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—*Cholam*. (b) *Sunhemp* for 63(89); Cotton for 64(100). (c) Nil for 63(89); 44·8 Kg/ha. of N as A/S+16·8 Kg/ha. of P_2O_5+16·8 Kg/ha. of K_2O for 64(100). (ii) Red loam. (iii) 15.8.63; 25.8.64. (iv) (a) 3 ploughings, working junior hoe and levelling, (b) Dibbling by hand. (c) 11 Kg/ha. (d) 76 cm.×23 cm. (e) 2. (v) 16·8 Kg/ha. of P_2O_5+16·8 Kg/ha. of K_2O as basal dressing and 44·8 Kg/ha. of N as top dressing. (vi) MCU—3. (vii) Irrigated. (viii) 2 to 3 weedings, hoeing and interculturing. (ix) 17 cm.; 37 cm. (x 16.1.64 to 30.3.64; 20.1.65 to 15.3.65.

2. TREATMENTS :

11 chemical treatments : T_0=Control, T_1=44·8, T_2=50·4, T_3=56·0 Kg/ha. of Calcium Cynamide, T_4=1·12, T_5=1·12, T_6=2·24, T_7=2·24, T_8=5·6 Kg/ha. of Pentachlorophenol, T_9=0·7 and T_{10}=1·4 litres/ha. of Reglone.

Treatments T_1, T_2 and T_3 were applied by dusting. Treatments T_5 and T_7 were applied by two sprayings and other treatments were applied as single spraying.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) 50·3 m.×6·4 m. (iii) 4. (iv) (a) 6·4 m.×4·6 m. (b) 6·4 m.×3·1 m. (v) 76 cm. on either side. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of boll worms. Parathion compounds were sprayed. (iii) Yield of *Kapas*. (iv) (a) 1963-64. (b) Yes. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 557 Kg/ha. (ii) 139·8 Kg/ha. (based on 10 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield	622	472	506	414	620	624	730	666	668	466	339

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	Sig.	G.M.	S.E./plot.
63(89)	837	618	736	579	801	890	996	898	960	526	299	*	740	137.1
64(100)	407	326	275	250	440	359	465	435	377	407	379	*	375	83.8
Pooled	622	472	506	414	620	624	730	666	668	466	339	N.S.	557	139·8

Crop :- Cotton (*Main*). **Ref :- T.N. 63(232), 64(229).**

Site :- Agri. College and Res. Instt., Coimbatore. Type :- 'D'.

Object :—To test the efficiency of various seed dressing fungicides for the control of blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 100 Q/ha. of F.Y.M. (ii) Black soil. (iii) 28.8.63 ; 9.9.64 (iv) (a) 2 ploughings. (b) Dibbling in lines. (c) 17 Kg/ha. (d) 60 cm.×23 cm. (e) 2. (v) 100 Q/ha. of F.Y.M. (vi) MCU—3. (vii) Unirrigated. (viii) 2 weedings and earthing up. (ix) 26 cm. 35 cm. (x) 3.1.64 to 16.4.64 ; 8.3.65 to 26.4.65.

2. TREATMENTS :

9 fungicidal treatments : F_0=Control, F_1=Agrosan G.N. 0·28% at 2·8 gm/Kg., F_2=Agrosan S.W. 0·18% at 1·8 gm/Kg., F_3=Spargon 0·25% at 2·5 gm/Kg., F_4=Tillex 0·22% at 2·2 gm/Kg., F_5 =Flit 406, 0·20% at 2 gm/Kg., F_6=Ceresan dry 0·33% at 3·3 gm/Kg., F_7=2% Ceresan 0·20% at 2·0 gm/Kg. and F_8=Dow 9 B 0·2% at 2 gm/Kg.

The seeds treated in the respective chemicals for about 15 minutes, dried and sown.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 13·4 m.×4·6 m. for 63(232); 13·4 m.×4·1 m. for 64(229). (b) 12·2 m.×3·7 m. (v) 61 cm.×46 cm. for 63(232) and 61 cm.×23 cm. for 64(229). (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Infection counts and yield of *Kapas*. (iv) (a) 1963—64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

I. **Yield**

63(232)

(i) 552 Kg/ha. (ii) 92·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8
Av. yield	584	525	528	540	556	504	522	711	494

64(229)

(i) 1029 Kg/ha. (ii) 209·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8
Av. yield	874	1067	986	1042	1005	1121	1013	1097	1052

Crop :- Cotton (*Mansoon*). **Ref :- T.N. 64(1 02).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the effects of fungicides against the pests of Cotton.

1. BASAL CONDITIONS :

(i) N.A. (ii) Loamy. (iii) 3.9.64. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 15 Kg/ha. (d) 45 cm. ×23 cm. (e) 1. (v) 56 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) MCU–3. (vii) Irrigated. (viii) 2 weedings. (ix) 36 cm. (x) March, 1965.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 7 chemicals : C_1=Parathion 0·025%, C_2=Endrin 0·02%, C_3=Thiometon 0·1%, C_4=Carboryl 0·1%, C_5=Parathion+Endrin (alternate spraying), C_6=Carboryl+Dimecron dust and C_7= Methyl Parathion+D.D.T.

(2) 2 levels of sprayings : L_1=4 rounds and L_2=6 rounds.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 7·6 m.×7·0 m. (b) 6·7 m.×6·1 m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Counts of aphids, jassids and thrips were recorded regularly, yield of *kapas*. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 341 Kg/ha. (ii) 147·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=146 Kg/ha.

	C_1	C_2	C_3	C_4	C_5	C_6	C_7	Mean
L_1	262	454	213	425	347	319	378	343
L_2	319	525	196	574	304	390	262	367
Mean	290	490	204	500	326	354	320	355

Crop :- Cotton (*Main*). **Ref :- T.N. 62(113).**

Site :- Agri. College & Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To assess the relative merits of various fungicides, antibiotics and chemicals in the control of blackarm disease of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Loamy. (iii) 23.8.62. (iv) (a) 2 ploughings, forming ridges and furrows. (b) Dibbling in lines. (c) 16·8 Kg/ha. (d) 75 cm.×23 cm. (e) 2. (v) 250 Q/ha. of F.Y.M. (vi) MCU–3. (vii) Irrigated. (viii) Thinning, gap filling and weeding. (ix) 46 cm. (x) 28.1.63 to 24.3.63.

2. TREATMENTS :

14 insecticides : I_0=Control, I_1=Bordeaux mixture, I_2=Dithane Z-78, 0·15%, I_3=Fytolan 0·25%, I_4=Streptomycin D–14, 0·15%, I_5=Mycostatin 0·3%, I_6=Dithane D–14, 0·15%, I_7—Sulphur dust 22·4 Kg/ha., I_8=Hexocop 4% dust 22·4 Kg/ha., I_9=Dithane M–22, 0·15%, I_{10}=Nickel Chloride 10 ppm, I_{11}=Hexocop 6% 22·4 Kg/ha., I_{12}=Folidol 220 ml. in 450 litres and I_{13}=Folidol+B.M. 1%.

Sprayings given thrice in a month. The first spraying was given 45 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20·2 sq. m. (Exact dimensions are not available). (v) 1 row around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Disease incidence and yield of *Kapas*. (iv) (a) 1962 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 1252 Kg/ha. (ii) 289·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	1071	1218	1107	1336	1278	1416	1219
	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}	I_{13}
	1071	1211	1303	1408	1327	1337	1228

Crop :- Cotton (*Summer*). **Ref :- T.N. 65(7).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—Fungicidal trial against diseases of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sunhemp*. (c) N.A. (ii) Red soil. (iii) 28.2.65, (iv) (a) 2 ploughings, forming ridges and furrows etc. (b) Dibbling in lines. (c) 16·8 Kg/ha, (d) 75 cm.×30 cm. (e) 2. (v) 247 Q/ha. of F.Y.M.+224 Kg/ha. of A/S. (vi) MCU—2. (vii) Irrigated. (viii) Gap filling, weeding, thinning, etc. (ix) 17·7 cm. (x) 15.6.65 to 19.7.65.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control, T_1=Streptomycin Sulphate 100 P.P.M., T_2=Streptomycin Sulphate 250 P.P.M., T_3=Sulphur dust 30 Kg/ha., T_4=Fytolan 0·25%, T_5=Dithane 0·15%, T_6=Wet Sulphur 1% and T_7=Bordeaux mixture 1%.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 4·5 m.×3 m. (b) 3 m.×3 m. (v) 75 cm. on either side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Disease counts and *Kapas* yield. (iv) (a) 1965—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3087 Kg/ha. (ii) 412·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean yield	2756	3080	3305	2978	2893	3337	3461	2884

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(164), 64(177).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To determine a suitable method of controlling weeds in Cotton fields.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) N.A. (ii) Black soil. (iii) 5.11.63, 18.10.64. (iv) (a) 2 ploughings with country plough. (b) Dibbling in lines. (c) 38 to 50 Kg/ha. (d) 46 cm.×23 cm. (e) 2. (v) 22·4 Kg/ha. of N as A/S. (vi) K—6 (Pandyan). (vii) Unirrigated. (viii) Weedings as per treatments. (ix) 54 cm., 43 cm. (x) 2.4.64 to 30.4.64, 27.2.65 to 30.3.65.

2. TREATMENTS :

5 methods of weedings : T_0=Control (unweeded check), T_1=Local method (hand hoe), T_2=Pre-emergence application of 1·68 Kg/ha. of acid as sodium salt of 2, 4—D, applied in 900 litre of water, 4 days before sowing, T_3=Pre-emergence application of weedicide+cultural method of weeding and T_4=Cultural method of weeding, once with implement and once by hand hoe.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 8·2 m.×32·0 m. for 63 (164), 18·3 m.×13·7 m. for 64(177) (iii) 4. (iv) (a) and (b) 8·2 m.× 6·4 m. for 63 (164), (a) 18·3 m.×2·7 m. (b) 17·7 m.×1.8 m. for 64 (177). (v) 1 to 2 rows. (vi) Yes.

4. GENERAL :

(i) Below normal. (ii) No serious incidence of pest or disease. (iii) *Kapas* yield. (iv) (a) 1963—64. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As variances are heterogeneous and Treatments×years interaction is absent, results of individal years are presented below.

5. RESULTS :

63(164)

(i) 90 Kg/ha. (ii) 36·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	6	135	10	151	149

C.D.=56·5 Kg/ha.

64(177)

(i) 141 Kg/ha. (ii) 71·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	32	239	31	223	178

C.D.=110·1 Kg/ha.

Crop :- Cotton (*Main*). **Ref :- T.N. 64(57).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'DV'.**

Object :—To evolve suitable control measure against Backarm on Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 123·5 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (ii) Black soil. (iii) 29.10.64. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 15 Kg/ha. (d) 45 cm.×15 cm. (e) 2. (v) 123·5 Q/ha. of F.Y.M. and 112 Kg/ha. of A/S. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding, hoeing and thinning. (ix) 40 cm. (x) 19.2.65 to 16.7.65.

2. TREATMENTS :

Main-plot treatments :

4 varieties : V_1=K—7, V_2=MCU—3, V_3=Pk—895 A and T_4=*Lakshmi*.

Sub-plot treatments :

6 fungicides : F_0=Control, F_1=Fytolan 0·25% spray, F_2=Dithane 0·15% spray, F_3=Wet Sulphur 1 Kg/10 litres, F_4=Streptomycine Sulphate 100 p.p.m. and F_5=Bordeaux mixture 1%.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·6 m.×1·8 m. (b) 2·7 m.×1·8 m. (v) 45 cm. on either side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Jassid, aphids and boll worms were found. (iii) Disease counts and yield of *Kapas*. (iv) (a) 1964—only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 776 Kg/ha. (ii) (a) 525·5 Kg/ha. (b) 174·9 Kg/ha. (iii) Only interaction V×F is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
V_1	613	922	667	696	870	750	753
V_2	808	611	880	868	707	724	766
V_3	837	815	857	592	739	848	781
V_4	716	796	751	839	1053	655	802
Mean	744	786	789	749	842	744	776

C.D. for F means at the same level of V=247·4 Kg/ha.

C.D. for V means at the same level of F=410·0 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(161).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a-naphthalene acetic acid and different times of application on crop growth and yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Cereals. (b) *Jowar*. (c) Nil. (ii) Black loam. (iii) 18.9.63. (iv) (a) 3 ploughings with country plough and forming ridges and furrows. (b) Sowing in lines. (c) 22 to 25 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU—3. (vii) Irrigated, (viii) 4 weedings and 1 earthing up. (ix) 25·6 cm. (x) From 1.3.64 onwards.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 concentrations of a—naphthalene acetic acid : H_0=Water, H_1=10 and H_2=20 ppm.

(2) 4 times of application of acid : T_0=Seed treatment, T_1=Spraying full dose when plants have 4 or 5 leaves, T_2=Spraying full dose at the time of flowering and T_3=Spraying $\frac{1}{2}$ dose when plants have 4 or 5 leaves and $\frac{1}{2}$ dose at flowering.

Sub-plot treatments :

2 fertilizers : F_1=56·1 Kg/ha. of N+33·7 Kg/ha. of P_2O_5+33·7 Kg/ha. of K_2O and F_2=112·2 Kg/ha. of N+67·3 Kg/ha. of P_2O_5+67·3 Kg/ha. of K_2O.

N applied in two doses—half at sowing and half at square initiation period. P_2O_5 and K_2O were applied at sowing as Super and Mur. Pot. respectively.

3. DESIGN :

(i) Split-plot. (ii) (a) 12 main-plots/replication and 2 sub-plots/main-plot. (b) 7·6 m.×106·8 m. (iii) 4. (iv) (a) 7·6 m.×6·7 m. (b) 6·1 m.×6·2 m. (v) 75 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, aphids and boll worm. Spraying of Endrin and Folidol and dusting of B.H.C. and D.D.T. were done. (iii) Height of plant, flower and boll counts, No. of sympodia, yield of *kapas*. (iv) (a) 1963 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 602 Kg/ha. (ii) (a) 167·7 Kg/ha. (b) 98·4 Kg/ha. (iii) Main effect of F is significant. Interaction H×F is highly significant. (iv) Av. yield of *Kapas* in Kg/ha.

	T_0	T_1	T_2	T_3	F_1	F_2	Mean
H_0	621	632	538	592	667	524	596
H_1	560	568	648	500	562	577	569
H_2	760	584	643	571	645	634	640
Mean	647	595	610	554	625	578	602
F_1	700	587	613	598			
F_2	594	602	606	510			

C.D. for F marginal means =40·8 Kg/ha.

C.D. for F means at the same level of H=70·6 Kg/ha.

C.D. for H means at the same level of F=98·6 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(171).**

Site :- Cotton Breeding Stn., Coimbatore. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a-naphthalene acetic acid and different times of application of the acid on growth and yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Cereals. (b) *Jowar*. (c) Nil. (ii) Black loam. (iii) 28.8.64. (iv) (a) 3 ploughings with country plough and forming ridges. (b) Dibbling in lines. (c) 25 Kg/ha. (d) 75 cm.×22·5 cm. (e) 1. (v) Nil. (vi) MCU—1. (vii) Irrigated. (viii) 2 hand hoeings and weedings and 1 earthing up. (ix) 41·4 cm. (x) 28.1.65 onwards (exact period not available).

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+ control (in two plots).

(1) 2 concentrations of a—naphthalene acetic acid : H_1=10 and H_2=20 ppm.

(2) 3 times of application of acid : T_1=At the time of flowering, T_2=14 days after flowering and T_3=Half at the time of flowering and at half 14 days after flowering.

Sub-plot treatments :

2 fertilizers : F_1=50 Kg/ha. of N+33·7 Kg/ha. of P_2O_5+33·7 Kg/ha. of K_2O and F_2=100 Kg/ha. of N+67·3 Kg/ha. of P_2O_5+67·3 Kg/ha. of K_2O.

N was applied as A/S—½ at the time of flowering and other ½ at square initiation period, P_2O_5 was applied as Super at the time of sowing and K_2O as Mur. Pot. at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication, 2 sub-plots/main-plot. (b) 11·0 m.×73·6 m. (iii) 4. (iv) (a) 11·0 m.×4·6 m. (b) 10·7 m.×3·1 m. (v) 15 cm.×75 cm. (vi) Yes.

4. GENELAL :

(i) Good. (ii) Incidence of jassids, aphids, boll worm and heliothis. Spraying of Endrin and Folidol and dusting of Sevin and Sulphur were done. (iii) Plant height, flower and boll counts, no. of sympodia, yield of *Kapas*, halo length and ginning percentage. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2025 Kg/ha. (ii) (a) 319·1 Kg/ha. (b) 133·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=1980 Kg/ha.

	T_1	T_2	T_3	F_1	F_2	Mean
H_1	2158	2168	1889	2097	2046	2072
H_2	1924	2199	1899	2041	1974	2007
Mean	2041	2184	1894	2069	2010	2040
F_1	2119	2198	1889			
F_2	1963	2169	1899			

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(176), 64(183).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'DM'.**

Object :—To study the effects of different methods of application of Nitrogen and times of application of A-Naphthalene acetic acid on Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* in 63, Cotton in 64. (c) Nil. (ii) Black soil. (iii) 4.11.63; 18.10.64. (iv) (a) 2 ploughings with country plough. (b) Dibbling in lines. (c) 37·5 to 50 Kg/ha. (d) 46 cm.×23 cm. in 63, 45 cm.× 15 cm. in 64. (e) N.A. (v) Nil. (vi) K—6 (Pandyan). (vii) Unirrigated. (viii) 3 weedings and hoeings. (ix) 54 cm. in 63, 43 cm. in 64. (x) 13.3.64 to 30.4.64; 26 2.65 to 1.4.65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+a control (no N).

(1) 2 levels of N as Urea : $N_1=22·4$ and $N_2=44·8$ Kg/ha.

(2) 3 modes of application of N : M_1=All in soil, M_2=All as foliar and $M_3=\frac{1}{2}$ in soil$+\frac{1}{2}$ as foliar.

Sub-plot treatments :

All combinations of (1) and (2)+a control (no harmones)

(1) 2 concentrations of N.A.A. : $C_1=10$ and $C_2=20$ P.P.M.

(2) 2 times of application of N.A.A. : T_1=At onset of flowering and T_2=14 days after flowering.

3. DESIGN:

(i) Split-plot. (ii) (a) 7 main-plots/replication; 5 sub-plots/main-plot. (b) 18·3 m.×94·5 m. (iii) 4. (iv) (a) 18·3 m.×2·7 m. (b) 17·7 m.×1·8 m. (v) 1 to 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Below normal. (ii) Nil. (iii) Yield of *Kapas.* (iv) (a) 1963—64. (b) No. (c) Results of combined analysis are presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and both main as well as sub-plot Treatments×years interactions are absent.

5. RESULTS :

(i) 326 Kg/ha. (ii) (a) 101·2 Kg/ha. (based on 41 d.f. made up of pooled error and interactions of various components of treatment with years). (b) 36·0 Kg/ha. (based on 171 d.f. made up of pooled error and interaction of various components of treatments with years). (iii) Main effect of M is highly significant and interaction C×N is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	Without N	With N	Mean
Without harmones	302	335	330
With harmones	298	329	325
Mean	300	330	326

	M_1	M_2	M_3	T_1	T_2	C_1	C_2	Mean
N_1	353	302	317	322	325	332	316	324
N_2	374	296	334	329	340	330	340	335
Mean	363	299	326	326	333	331	328	329
C_1	365	300	327	330	331			
C_2	361	298	325	322	335			
T_1	364	294	320					
T_2	363	304	332					

C.D. for M marginal means =36·1 Kg/ha.

C.D. for C means at the same level of N=14·4 Kg/ha.

C.D. for N means at the same level of C=31·2 Kg/ha.

Years	M_1	M_2	M_3	Sig.	N_1	N_2	Sig.
1963	433	336	386	*	380	390	N.S.
1964	294	262	266	N.S	268	280	N.S.
Pooled	363	299	326	**	324	335	N.S.

Years	C_1	C_2	Sig.	T_1	T_2	Sig.	G.M.	S.E. main-plot	S.E. Sub-plot
1963	385	385	N.S.	387	383	N.S.	377	100·3	33·6
1964	277	271	N.S.	265	283	N.S.	274	91·0	37·6
Pooled	331	328	N.S.	326	333	N.S.	326	101·2	36·0

Crop :- Cotton (*Winter*). **Ref :- T.N. 63(160).**

Site :- Cotton Res. Stn., Periyakulam. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a-naphthalene acetic acid and different times of application of acid on crop growth and yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) Nil. (ii) Black loam. (iii) 12.10.63. (iv) (a) 3 ploughings with country plough and bed forming. (b) Dibbling in lines. (c) 38 to 50 Kg/ha. (d) 61 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU—1. (vii) Unirrigated. (viii) 3 hoeings and weedings, thinning and plant protection measures. (ix) 55·9 cm. (x) 26.2.64 onwards (exact period not available).

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 concentrations of a-naphthalene acetic acid : H_0=Water, H_1=10 and H_2=20 p.p.m.

(2) 4 times of application of acid : T_0=Seed treatments, T_1=Spraying full dose when plants have 4 or5 leaves, T_2=Spraying full dose at the time of flowering and T_3=Spraying ½ dose when plants have 4 or 5 leaves and other ½ at the time of flowering.

Sub-plot treatments :

2 fertilizers : F_1=28·1 Kg/ha. of N, 22·4 Kg/ha. of P_2O_5 and 22·4 Kg/ha. of K_2O and F_2=56·1 Kg/ha. of N, 44·9 Kg/ha. of P_2O_5 and 44·9 Kg/ha. of K_2O.

N applied as A/S in two doses—½ at the time of sowing and ½ at square initiation, P_2O_5 as Super and K_2O as Mur. Pot. both applied at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) 12 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 7·6 m.×6·7 m. (b) 7·2 m.×5·5 m. (v) 20 cm.×60 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, boll worms, stem weevil, leaf eating, caterpillers and blackarm. Spraying of Endrin and Parathion and dusting of Sevin were done at 15 days interval. (iii) Plant height, flower and boll counts, no. of sympodia and yield of *Kapas*. (iv) (a) 1963 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 128 Kg/ha. (ii) (a) 27·7 Kg/ha. (b) 25·2 Kg/ha. (iii) Main effect of T is significant. (iv) Av. yield of *Kapas* in Kg/ha.

	T_0	T_1	T_2	T_3	F_1	F_2	Mean
H_0	126	126	155	113	122	137	130
H_1	117	138	127	124	125	128	126
H_2	121	133	144	114	125	132	128
Mean	121	132	142	117	124	132	128
F_1	116	121	144	115			
F_2	126	144	141	119			

C.D. for T marginal means=16·3 Kg/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(170).**

Site :- Cotton Res. Stn., Periyakulam. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a-naphthalene acetic acid and different times of application of the acid on growth and yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) Same experiment was conducted in the previous year (ii) Black loam. (iii) 15.10.64. (iv) (a) 3 ploughings with country plough and forming beds. (b) Dibbling the seeds in lines. (c) 37 to 50 Kg/ha. (d) 45 cm.×15 cm. (e) 1. (v) Nil. (vi) MCU-1 (Winter Combodia). (vii) Unirrigated. (viii) 3 hoeings and weedings, thinning and plant protection measures. (ix) 83·4 cm. (x) 26.3.65 and onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+control (2 plots)

(1) 2 concentration of a-naphthalene acetic acid : H_1=10 and H_2=20 ppm.

(2) 3 times of application of the acid : T_0=At the time of flowering, T_1=14 days after flowering and T_2=½dose at the time of flowering and other ½ at 14 days after flowering.

Sub-plot treatments :

2 fertilizers : F_1=30 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O and F_2=60 Kg/ha. of N+44·9 Kg/ha. of P_2O_5 + 44·9 Kg/ha. of K_2O.

N was applied as A/S in two doses, ½ at sowing and other ½ at square initiation, P_2O_5 and K_2O were applied as Super and Mur. Pot. respectively at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication ; 2 sub-plots/main—plot. (b) 18·3 m.×43·8 m. (iii) 4. (iv) (a) 18·3 m.×2·8 m. (b) 18·0 m.×1·8 m. (v) 15 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, boll worms, stemweevil, leaf eating caterpiller and blackarm. Spraying of Endrin and Parathion, and dusting of Sevin were done at 15 days interval. (iii) Plant height, flower and boll counts, no. of sympodia, yield of *Kapas*. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 217 Kg/ha. (ii) (a) 87.8 Kg/ha. (b) 29·7 Kg/ha. (iii) Main effect of F and interaction F×T are significant. (iv) Av. yield of *Kapas* in Kg/ha.

Control=206 Kg/ha.

	T_0	T_1	T_2	F_1	F_2	Mean
H_1	200	244	242	223	235	229
H_2	233	224	176	202	221	211
Mean	217	234	209	212	228	220
F_1	219	234	184			
F_2	215	234	234			

C.D. for F marginal means =15·3 Kg/ha.
C.D. for F means at the same level of T=30·8 Kg/ha.
C D. for T means at the same level of F=68·2 Kg/ha.

Crop :- Cotton (*Summer*). **Ref :- 63(159).**
Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a-naphthalene acetic acid and different times of application on crop growth and yield of Cotton.

1. BASAL CNNDITIONS:

(i) (a) Cotton-Paddy. (b) Paddy. (c) 56 Q/ha. of G.M., 168 Kg/ha. of P_2O_5 as Super. and 168 Kg/ha. of N as A/S. (ii) Alluvium. (iii) 20.3.63. (iv) (a) Two ploughings with country plough and forming ridges. (b) Dibbling in holes. (c) 22 Kg/ha. (d) 76 cm.×23 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) 3 hoeings and weedings and 1 earthing up. (ix) 25·3 cm. (x) June to August, '63.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 concentration of a n-apthalene acetic acid : H_0=Water, H_1=10 and H_2=20 ppm.

(2) 4 times of application of the acid : T_0=Seed treatments, T_1=Spraying full dose when plants have 4 or 5 leaves, T_2=Spraying full dose at the time of flowering and T_3=Spraying ½ dose when plants have 4 or 5 leaves and other ½ at the time of flowering.

Sub-plot treatments :

2 fertiliser combinations : F_1=44·9 Kg/ha. of N, 28·1 Kg/ha. of P_2O_5 and 28·1 Kg/ha. of K_2O and F_2=89·8 Kg/ha. of N, 56·1 Kg/ha. of P_2O_5 and 56·1 Kg/ha. of K_2O.

N was applied as A/S in two doses - ½ at the time of sowing and other half at square initiation and P_2O_5 as Super and K_2O as Mur. Pot. were applied before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 12 main-plots/replication ; 2 sub-plots/main plot. (b) N.A. (iii) 4. (iv) (a) 7·6 cm.× 5·5 m. (b) 6·1 m.×5·0 m. (v) 2 to 3 rows. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, aphids, mite, boll worm and blackarm. Spraying of Endrin, Folidol and BHC and dusting of DDT and Sulphur were done. (iii) Plant height, flower and boll count, no. of sympodia, yield of *Kapas*. (iv) (a) 1963-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1781 Kg/ha. (ii) (a) 427·9 Kg/ha. (b) 276·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *Kapas* in Kglha.

	T_0	T_1	T_2	T_3	F_1	F_2	Mean
H_0	1779	1947	1866	1932	1920	1841	1881
H_1	1643	1647	1822	1589	1627	1724	1675
H_2	1725	1988	1754	1682	1843	1732	1787
Mean	1716	1861	1814	1734	1797	1766	1781
F_1	1681	1860	1830	1816			
F_2	1751	1861	1798	1652			

Crop :- Cotton (*Summer*). **Ref :- T.N. 64(169).**

Site :- Cotton Res. Stn., Srivilliputtur. **Type :- 'DM'.**

Object :—To study the effect of different concentrations of a—naphthalene acetic acid and different times of application of the acid on crop growth and yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Paddy-Cotton. (b) Paddy. (c) 5600 Kg/ha. of G.M., 168 Kg/ha. of P_2O_5 as Super and 168 Kg/ha. of N as A/S. (ii) Alluvium. (iii) 10.3.64. (iv) (a) 2 ploughings with country plough and forming ridges. (b) Dibbling by hand. (c) 22·4 Kg/ha. (d) 76·2 cm.×22·9 cm. (e) 1. (v) Nil. (vi) MCU-2 (early). (vii) Irrigated. (viii) 3 hoeings and weedings and 1 earthing up. (ix) 26·9 cm. (x) 29.6.64 to 10.8.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+two controls :—C_1=Water spraying and C_2=No spray.

(1) 2 concentrations of a—naphthalene acetic acid : H_1=10 and H_2=20 ppm.

(2) 3 times of application of the acid : T_1=At the time of flowering, T_2=14 days after flowering and T_3=½ dose at the time of flowering and ½ dose at 14 days after flowering.

Sub-plot treatments :

2 fertilizer combinations : F_1=56·1 Kg/ha. of N, 33·7 Kg/ha. of P_2O_5 and 33·7 Kg/ha. of K_2O and F_2=112 Kg/ha. of N, 67·3 Kg/ha. of P_2O_5 and 67·3 Kg/ha. of K_2O.

N was applied as A/S in two doses : ½ at the time of sowing and other ½ at square initiation. P_2O_5 and K_2O were applied as Super and Mur. Pot. respectively at sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication ; 2 sub-plots/main plot. (b) 9·5 m.×84·8 m. (iii) 4. (iv) (a) 9·5 m.×5·3 m. (b) 8·5 m.×3·8 m. (v) 2 to 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of jassids, aphids, boll worm, mite and blackarm. Spraying of Endrin and Folidol and dusting of BHC, DDT and Sulphur were done. (iii) Yield of *kapas*, height of plant, halo length, ginning percent, seed index, lint index etc. (iv) (a) 1964 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1417 Kg/ha. (ii) (a) 326·9 Kg/ha. (b) 231·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in Kg/ha.

C_1=1494 and C_2=1359 Kg/ha.

	T_1	T_2	T_3	F_1	F_2	Mean
H_1	1337	1624	1212	1415	1368	1391
H_2	1534	1401	1373	1445	1427	1436
Mean	1436	1513	1293	1430	1397	1414
F_1	1485	1574	1231			
F_2	1386	1452	1354			

Crop :- Tobacco (*Rabi*). **Ref :- T.N. 62, 63(S.F.T) for Salem ; 62(S.F.T.) for Coimbatore.**

Site :- (District) : Salem, Coimbatore. Type :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITION :

(i) (a) to (c) N.A. (ii) Red loamy ; Red and black ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O=Control (no manure)
N_1=15 Kg/ha. of N
N_2=30 Kg/ha of N
P_1=30 Kg/ha. of P_2O_5
N_1P_1=15 Kg/ha. of N+30 Kg/ha of P_2O_5
N_2P_1=30 Kg/ha. of N+30 Kg/ha. of P_2O_5
N_2P_2=30 Kg/ha. of N+60 Kg/ha. of P_2O_5
$N_2P_2K_1$=30 Kg/ha. of N+60 Kg/ha. of P_2O_5+30 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 expriments, 11 villages are randomly selected in each block and in each village 3 expriments, one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962-only for Coimbatore ; 1962 and 1963 for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of tobacco in Kg/ha.	296	610	−43	474	642	1202	1262	150·6

Control yield=11887 Kg/ha. ; No. of trials=4.

Salem

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of. tobacco in Kg/ha.	2260	2715	603	1786	1654	3301	2013	174·1

Control yield=13558 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of tobacco in Kg/ha.	489	2406	−597	−1077	158	1013	1418	533·4

Control yield=9607 Kg/ha, ; No. of trials=3.

Crop :- Tobacco (*Kharif*). **Ref :- T.N. 63, 64 for (S.F,T.).**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object :— Type A_1 : To study the response curves of important cereal, cash and oilseed crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) N.A. (ii) Red and black ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1 (*Rabi*) on page 512.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1963 to 1964 (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

63 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of tobacco in Kg/ha.	871	1880	700	1502	1122	1517	1921	661·0

Control yield=11197 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of tobacco in Kg/ha.	−395	−494	−1581	−790	889	2372	2569	1150·1

Control yield=14430 Kg/ha. ; No. of trials=2.

Crop :- Tobacco (*Rabi*). **Ref :- T.N. 62(S.F.T.) for Salem and Coimbatore ; 63(S.F.T.) for Madurai.**

Site : (District) : Salem, Coimbatore and Madurai. **Type :- 'M'.**

Object :—Type A_2 : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black ; Red loamy ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)
N_1=70 Kg/ha. of N
P_1=35 Kg/ha. of P_2O_5
P_2=70 Kg/ha. of P_2O_5
N_1P_1=70 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_1P_2=70 Kg/ha. of N+ 70 Kg/ha. of P_2O_5
N_2P_2=140 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_2$=140 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha of K_2O
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (*Rabi*) on page 512.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963-only for Madurai and 1962-only for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of tobacco in Kg/ha.	445	722	725	1005	1644	2026	2537	122·7

Control yield=12454 Kg/ha. ; No. of trials=4.

Salem

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of tobacco in Kg/ha.	2359	1236	1749	2613	3433	3604	4194	830·6

Control yield=14187 Kg/ha. ; No. of trials=4.

Madurai

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of tobacco in Kg/ha.	721	681	1769	770	1522	1393	1373	519·0

Control yield=7076 Kg/ha. ; No. of trials=2.

Crop :- Tobacco (*Kharif*). **Ref :- T.N. 63, 64(S.F.T.).**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object :—Type A_2 : To study the response curves of important cereal, cash aad oilseed crops to Phosphorus applied singly and in combination with other nutrients

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black ; Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and3. DESIGN:

Same as in Type A_2 (*Rabi*) on page 513.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1964 (b) N A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of tobacco in Kg/ha.	200	95	326	415	−583	724	889	86·2

Control yield=11409 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of tobacco in Kg/ha.	593	494	790	1877	1482	3261	2767	1080·1

Control yield=12256 Kg/ha. ; No. of trials=2.

Crop :- Tobacco (*Rabi*).

Ref :- T.N. 62(S.F.T.) for Coimbatore, 63(S.F.T.) for Madurai ; 62, 63(S.F.T.) for Salem.

Site :- (District) : Coimbatore, Madurai and Salem.

Type :- 'M'.

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Red sandy for Madurai and Red loamy for Salem. (iii) to (vi)N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure)
N_1=15 Kg/ha. of N.
K_1=30 Kg/ha. of K_2O.
K_2=60 Kg/ha. of K_2O.
N_1K_1=15 Kg/ha. of N+30 Kg/ha. of K_2O.
N_1K_2=15 Kg/ha. of N+60 Kg/ha. of K_2O.
N_2K_2=30 Kg/ha. of N+60 Kg/ha. of K_2O.
$N_1P_1K_1$=15 Kg/ha. of N+30 Kg/ha. of P_2O_5+30 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in Type A_1 (*Rabi*) on page 512.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1963 (1963 N.A.) for Coimbatore ; 1963-only for Madurai and 1962 to 1963 for Salem. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of tobacco in Kg/ha.	1011	329	—109	—250	435	1502	2119	215·6

Control yield=12319 Kg/ha. ; No. of trials=4.

Madurai

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of tobacco in Kg/ha.	721	681	1769	770	1522	1393	1373	519·0

Control yield=7076 Kg/ha. ; No. of trials=2.

Salem

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of tobacco in Kg/ha.	1805	438	1077	2138	2830	3482	1433	608·8

Control yield=15007 Kg/ha. ; No. of trials=3.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of tobacco in Kg/ha.	—309	—1607	1337	1937	—513	3149	4342	N.A.

Control yield=8836 Kg/ha. ; No. of trials=2.

Crop :- Tobacco (*Kharif*). **Ref :- T.N. 63, 64(S.F.T.).**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in type A_3 (*Rabi*) on page 515.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1964 (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of tobacco in Kg/ha.	200	95	326	415	—583	724	889	86·2

Control yield=11409 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment Av. response of tobacco in Kg/ha.	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
	—98	—98	—395	—691	—593	691	494	670·0

Control yield=9587 Kg/ha. ; No. of trials=2.

Crop :- Tobacco.

Ref :- T.N. 60(S.F.T.) for Coimbatore and Tiruchirapalli.

Site :- (District) : Coimbatore and Tiruchirapalli.

Type :- 'M'.

Object :— Type A : To study the response of Tobacco to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore and Red for Tiruchirapalli. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatment :

0 =Control (no manure).
n =44·8 Kg/ha. of N as A/S.
p =22·4 Kg/ha. of P_2O_5 as Super.
k =22·4 Kg/ha. of K_2O as Mur. Pot.
np =44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
nk =44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
pk =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
npk =44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1960-only for Coimbatore and Tiruchirapalli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

Treatment Av. response of tobacco in Kg/ha.	n	p	k	S.E.	np	nk	pk	npk	S.E.
	660	300	640	204·0	—130	—70	350	730	192·0

Control yield=8490 Kg/ha. ; No. of trials=4.

Tiruchirapalli

Treatment Av. response of tobacco in Kg/ha.	n	p	k	S.E.	np	nk	pk	npk	S.E.
	1480	850	—180	148·0	530	—320	410	630	142·0

Control yield=19490 Kg/ha. ; No. of trials=2.

Crop :- Tobacco. **Ref :- T.N. 61(S.F.T.).**

Site :- (District) : Coimbatore. **Type :- 'M'.**

Object : – Type B : To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black. (iii) to (x) N.A.

2. TREATMENTS :

o=Control (no manure).
n_1=44·8 Kg/ha. of N as A/S.
n_2=89·6 Kg/ha. of N as A/S.
n_1'=44·8 Kg/ha. of N as Urea.
n_2'=89·6 Kg/ha. of N as Urea.
n_1''=44·8 Kg/ha. of N as A/S/N.
n_2''=89·6 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in type A on page 517.

4. GENERAL :

(i) to (iii) N.A. (iv) 1961-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Treatment	o	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of tobacco in Q/ha	106·3	123·2	127·4	120·9	125·8	123·7	127·2

G.M.=122·1 Q/ha. ; S.E./mean=2·5 Q/ha. ; and no. of trials=4.

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 61(87), 62(124), 63(177).**

Site :- Gingelly Res. Stn., Karur. **Type :- 'M'.**

Object :—To fix an optimum dose of N, P and K for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gingelly for 61(87); Groudnut for others. (c) 100 Q/ha. of C.M. for 61(87); 125 Q/ha. of C.M. for 62(124); N.A. for 63(177). (ii) Red sandy loam strewn with pebbles. (iii) 4, 5.9.61; 31.8.62; 25.8.63. (iv) (a) 2 ploughings with country plough and 1 digging with spade for 62(124); 2 diggings with spades for others. (b) Dibbling in lines. (c) 105 Kg/ha. (d) 23 cm. × 23 cm. (e) 1. (v) Nil. (vi) TMV—3 (late). (vii) Unirrigated. (viii) Hand hoeings and weedings thrice. (ix) 12 cm.; 60 cm.; 53 cm. (x) 20, 22, 23.1.62; 19 to 21.1.63; 7, 8.1.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 3 levels of N as A/S : N_0=0, N_1=16·8 and N_2=33·6 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.
(4) 2 levels of C.M. : C_0=0 and C_1=5600 Kg/ha.

A/S, Super and Mur. Pot. were applied as basal dressing in the soil within one week prior to sowing.

3. DESIGN :

(i) $3^3 \times 2$ confd. [NP, NK^2, PK, NP^2K. confd. in 61(87) and 63(177), NP, NK, PK^2 NP^2K^2 confd. in 62(124)]. (ii) (a) 9 blocks/replication; 6 plots/block. (b) 4·6 m.×82·3 m. (iii) 1. (iv) (a) 13·7 m.×4·6 m. (b) 11·0 m.×3·7 m. (v) 137 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Attack of wilt was noticed, incidence of Verpoochi was severe which was controlled by spraying Phytolan for 61(87); Wilt attack and incidence of *Sphenoptora* perrotate for 62(124); Incidence of Red hairy Catterpillar, controlled by dusting B.H.C. 10% and incidence of Verpoochi for 63(177) which was checked by removal of attacked plants. (iii) Flower counts, growth measurements and yield of pods. (iv) (a) 1961—63. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. The results of individual years are presented under 5. Results.

5. RESULTS :

61(87)

(i) 333 Kg/ha. (ii) 99·2 Kg/ha. (iii) Interaction C×K alone is significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
C_0	319	358	301	312	340	326	288	330	360	326
C_1	363	330	327	328	344	348	376	372	272	340
Mean	341	344	314	320	342	337	332	351	316	333
K_0	320	330	346	335	329	332				
K_1	350	384	319	329	381	343				
K_2	353	318	277	296	316	336				
P_0	361	297	302							
P_1	346	362	318							
P_2	316	373	322							

C.D. for the means in the body of C×K table=97·6 Kg/ha.

62(124)

(i) 203 Kg/ha. (ii) 92·5 Kg/ha. (iii) None of the effects is significants. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
C_0	210	228	186	169	190	265	203	244	177	208
C_1	218	186	190	203	180	211	211	212	171	198
Mean	214	207	188	186	185	238	207	228	174	203
K_0	210	206	205	161	152	308				
K_1	258	263	163	281	178	225				
K_2	174	152	196	116	225	181				
P_0	207	200	151							
P_1	217	184	154							
P_2	218	237	259							

63(177)

(i) 1170 Kg/ha. (ii) 218·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
C_0	1199	1177	1170	1042	1294	1210	1208	1168	1170	1182
C_1	1131	1161	1182	1142	1146	1186	1144	1192	1138	1158
Mean	1165	1169	1176	1092	1220	1198	1176	1180	1154	1170
K_0	1118	1316	1094	1038	1311	1179				
K_1	1104	1163	1273	1178	1199	1163				
K_2	1273	1028	1161	1060	1150	1252				
P_0	1036	1136	1104							
P_1	1254	1201	1205							
P_2	1205	1170	1219							

Crop :- Groundnut (*Main*). **Ref :- T.N. 61(93).**

Site :- Groundnut Res. Stn., Pottachi. **Type :- 'M'.**

Object : –To find out the differential response of Groundnut crop to the application of C/A/N in comparison with A/S.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Horse gram. (c) Nil. (ii) Red loam. (iii) 15.5.61. (iv) (a) 3 ploughings with country plough and 1 with tractor. (b) Dibbling in lines. (c) 125 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) Nil. (vi) TMV—2. (vii) Unirrigated. (viii) 2 weedings with hand hoes. (ix) 69 cm. (x) 12.9.61.

2. TREATMENTS :

9 manurial treatments : T_0=Control. T_1=C/A/N at 22·4 Kg/ha. of N, T_2=A/S at 22·4 Kg/ha. of N, T_3= Super at 22·4 Kg/ha. of P_2O_5, T_4=Mur. Pot. at 33·6 Kg/ha. of K_2O, T_5=C/A/N at 22·4 Kg/ha. of N+Super at 22·4 Kg/ha. of P_2O_5. T_6=A/S at 22·4 Kg/ha. of N+Super at 22·4 Kg/ha. of P_2O_5, T_7=C/A/N at 22·4 Kg/ha. of N+Super at 22·4 Kg/ha. of P_2O_5+Mur. Pot. at 33·6 Kg/ha. and T_8=A/S at 22·4 Kg/ha. of N+Super at 22·4 Kg/ha. of P_2O_5+Mur. Pot. at 33·6 Kg/ha. of K_2O.

Manures applied in the soil as basal dressing one week prior to sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 10·7 m.×2·7 m. (b) 10·4 m.×2·4 m. (v) 15 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Flowering, productive phase study and pod yield. (iv) to (vii) Nil.

5. RESULTS:

(i) 974 Kg/ha. (ii) 205·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1016	981	915	1116	1007	943	996	912	884

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 63(113), 64(115).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :—To study the role of lime in enhancing fertilizer response on the red sandy soils on Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of F.Y.M. (ii) Red sandy loam. (iii) 6.8.63; 27.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling with wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 62·5 Q/ha. of F.Y.M. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 82 cm., 69 cm. (x) 25.11.63; 7.12.64.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of lime : $L_0=0$, $L_1=560$, $L_2=1120$ Kg/ha.
(2) 2 levels of N as A/S : $N_0=0$, $N_1=11·2$ Kg/ha.
(3) 2 levels of P_2O_5 as Super : $P_0=0$, $P_1=22·4$ Kg/ha.

A/S and Super applied as basal dressing in the soil 2 days before sowing, and incorporated by hand hoes. Lime applied as slaked lime 20 days before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 7·4 m.×5·5 m. for 63; 7·4 m.×5·5 m. for 64. (b) 6·8 m.×4·9 m. for 63; 6·5 m.×4·6 m. for 64. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Folidol sprayed twice against mild attack of 'Surul'. (iii) Yield of pods. (iv) (a) 1963—65 (1965 N.A). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments ×years interaction is absent; results of individual years are presented under 5. Results.

5. RESULTS :

63(113)

(i) 699 Kg/ha. (ii) 110·6 Kg/ha. (iii) Main effect of P is highly significant and that of N is significant. (iv) Av. yield of pods in Kg/ha.

	L_0	L_1	L_2	P_0	P_1	Mean
N_0	639	646	703	590	735	663
N_1	658	775	771	690	779	735
Mean	648	711	737	640	757	699
P_0	574	661	684			
P_1	722	760	790			

C.D. for N or P marginal means=65·1 Kg/ha.

64(115)

(i) 144 Kg/ha. (ii) 31·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of pods in Kg/ha.

	L_0	L_1	L_2	P_0	P_1	Mean
N_0	121	145	147	134	141	138
N_1	142	152	154	137	161	149
Mean	131	149	151	136	151	144
P_0	115	146	147			
P_1	147	152	155			

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 63(137), 64(143).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :—To study the fertilizing effect of C/A/N and Urea as compared to A/S on Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of C.M. (ii) Red sandy loam. (iii) 25.7.63 ; 26.8.64. (iv) (a) 3 to 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm.×15 cm. for 63(137); 13 cm.×13 cm. for 64(143). (e) 1. (v) 62·5 Q/ha. of C.M. applied to all plots except control plot. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings+2 weedings. (ix) 75 cm.; 69 cm. (x) 6.11.63; 7.12.64.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 4 sources of N at 22·4 Kg/ha. : N_0=Control (No N), N_1=C/A/N, N_2=A/S and N_3=Urea.
(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22·4 Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=33·6 Kg/ha.

All manures were applied as basal dressing 2 to 3 days before sowing when the soil was slightly moist and then incorporated by hand hoes.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) 8·8 m.×73·1 m. (iii) 4. (iv) (a) 8·8 m.×4·6 m. (b) 8·2 m.×4·0 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild incidence of Surul poochi which was controlled by spraying Folidol. (iii) Yield of pods. (iv) (a) 1963—64. (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Error variances are heterogeneous, Treatments×years interaction is present.

5. RESULTS :

(i) 636 Kg/ha. (ii) 93·6 Kg/ha. (based on 9 d.f. made up of various components of Treatments×years interaction). (iii) Main effect of P alone is significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	N_3	K_0	K_1	Mean
P_0	562	601	621	589	559	628	593
P_1	644	693	691	685	667	690	678
Mean	603	647	656	637	613	659	636
K_0	568	628	630	625			
K_1	638	666	682	649			

C.D. for P marginal means=74·9 Kg/ha.

Years	N_0	N_1	N_2	N_3	Sig.	P_1	P_2	Sig.	K_0	K_1	Sig.	G.M.	S.E./plot
1963	943	1012	1020	927	N.S.	908	1077	**	947	1039	*	993	154·7
1064	264	282	292	277	N.S.	278	279	N.S.	279	278	N.S.	279	64·6
Pooled	603	647	656	637	N.S.	593	678	*	613	659	N.S.	636	93·6

Crop :- Groundnut (*Summer*). **Ref :- T.N. 63(146), 64(146).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :— To study the effect of Urea as foliar spray as compared to basal dressing on Groundnut.

1. BASAL CONDITIONS;

(i) (a) Nil. (b) Vegetable for 63(146), Groundnut for 64(146). (c) 250 Q/ha. of F.Y.M. for 63(146), 62·5 Q/ha. of F.Y.M. for 64(146). (ii) Red sandy loam. (iii) 17.2.63; 8.2.64. (iv)(a) 3 to 4 ploughings with Cooper plough. (b) Dibbling with wooden pegs. (c) 112 Kg/ha. (d) 23 cm. × 15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV 2 (early). (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 14 cm., 2 cm. ; (x) 5.6.63 ; 25.5.64.

2. TREATMENTS :

5 methods of application of N : T_1=Basal dressing, T_2=Foliar spray in 2 doses, T_3=Foliar spray in 3 doses, $T_4=\frac{1}{2}$ as basal dressing+$\frac{1}{2}$ as foliar spray in 2 doses and $T_5=\frac{1}{2}$ as basal dressing+$\frac{1}{2}$ as foliar spray in 3 doses.

N applied as Urea at 22·4 Kg/ha. 1123 litre/ha. of water for each spray. First spray one month after sowing and subsequent sprayings at fortnightly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 8·5 m. × 17·9 m. for 63(146), 8·9 m. × 22·9 m. for 64(146), (iii) 5. (iv) (a) 8·5 m. × 3·6m. (b) 7·6 m. × 2·9 m. for 63(146); (a) 8·8 m. × 4·6 m.(b) 8·2 m. × 3·7 m. for 64(146).(v) Two rows alround.(vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spray of Endrin and Folidol against 'Surul poochi.' (iii) Yield of Pods. (iv) (a) 1963-64. (b) No. (c) Presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

(i)1320 Kg/ha. (ii) 144·4 Kg/ha. (based on 36d.f. made up of pooled error and Treatments × years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	1274	1241	1304	1410	1372

Years		T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1963	680	668	712	857	782	N.S.	740	82 5
1964	1868	1814	1897	1964	1963	N. .	1901	113·4
Pooled	1274	1241	1304	1410	1372	N.S.	1320	144·4

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 60(9).**

Site :- Agri. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :— To find out the effect of methods of placement of manure mixtures on Groundnut.

1. BASAL CONDITIONS :

(i) (a) Groundnut-Castor. (b) Groundnut. (c) 37 C.L./ha. of M.C. (ii) Red loamy soil. (iii) 29·8.60. (iv) (a) Working junior hoe twice and ploughing with Cooper. (b) Dibbling. (c) 134 Kg/ha. (d) 15 cm.×15 cm. (e) N.A. (v) Nil. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and weedings. (ix) 83 cm. (x) 13.12.60.

2. TREATMENTS :

6 manurial treatments : T_0=Control (no manure), T_1=126 Q/ha. of F.Y.M., T_2=112 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+56·0 Kg/ha. of K_2O by broadcast, $T_3=T_2$ by side placement, T_4 =22·4 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+56·0 Kg/ha. of K_2O by broadcast and $T_5=T_4$ by side placement.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 8. (iv) (a) 20·7 m.×2·7 m. (b) 18·3 m.×2·3 m. (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Not satisfactory. (ii) Severe attack of Surul poochi and Tikka leaf spot, controlled by dusting D.D.T. 5% and spraying Bordeaux mixture 3/4% respectively. (iii) Pod yield. (iv) (a) 1957-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 239 Kg/ha. (ii) 44·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	214	253	234	263	230	240

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 63(112), 64(116).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :— To study the efficacy of Super and Compost in increasing the yield of Groundnut crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of Compost. (ii) Red sandy loam. (iii) 2.8.63 ; 26.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) Nil. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and weedings. (ix) 76 cm., 69 cm. (x) 20.11.63; 14.12.64.

2. TREATMENTS :

6 manurial treatments : T_0=No manure (control), T_1=Plain compost at 127 Q/ha., T_2=Super at 224 Kg/ha., $T_3=T_1+T_2$ (applied separately), T_4=Plain compost at 127 Q/ha.+Super at 224 Kg/ha. (mixed a fortnight before application) and T_5=Super composted at 127 Q/ha. (applied at the time of sowing).

Compost applied by broadcast in the soil 2 to 3 days before sowing and incorporated with mummuthy. Super as basal dressing 2 to 3 days before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 9·1 m.×26·5 m. (iii) 5. (iv) (a) 9·1 m.×4·4 m. for 63(112) and 9·1 m.×4·4 m. for 64(116). (b) 8·5 m.×3·8 m. for 63(112) and 8·2 m.×3·5 m. for 64(116). (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild attack of 'Surul'. Folidol sprayed twice. (iii) Yield of Pods. (iv) (a) 1963—64 (b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments× years interaction is absent.

5. RESULTS :

63(112)

(i) 1116 Kg/ha. (ii) 182·5 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of Pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	941	1107	1009	1199	1144	1298

C.D.=240·7 Kg/ha.

64(116)

(i) 341 Kg/ha. (ii) 49·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	276	329	358	353	352	376

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 60, 61, 62, 63, 64 (M.A.E.).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type II : To study the effect of different levels of N, P, K and F.Y.M. on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Cotton-*Jowar*-Groundnut. (b) *Jowar*. (c) As per treatments. (ii) Red loam. (iii) 3.8.61, N.A. for other years. (iv) and (v) N.A. (vi) TMV-2. (vii) Irrigated. (viii) and (ix) N.A. (x) 19.12.61, N.A. for other years.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 levels of F.Y.M. : $F_0=0$ and $F_1=5600$ Kg/ha.

(2) 3 levels of N as A/s : $N_0=0$, $N_1=22·4$ and $N_2=44·8$ Kg/ha.

(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=22·4$ and $P_2=44·8$ Kg/ha.

(4) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=22·4$ and $K_2=44·8$ Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Fact. Confd. (ii) (a) 9 plots/block and 3 blocks for each of F_0 and F_1. (b) N.A. (iii) 1. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of pods. (iv) (a) 1957—64 (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1960

(i) 1589 Kg/ha. (ii) 290·5 Kg/ha. (iii) Main effect of P alone is significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	1669	1660	1577	1448	1586	1871	1540	1734	1631	1635
F_1	1466	1568	1596	1476	1596	1557	1540	1642	1447	1543
Mean	1568	1614	1586	1462	1591	1714	1540	1688	1539	1589
K_0	1568	1466	1586	1439	1540	1641				
K_1	1679	1789	1596	1559	1715	1790				
K_2	1457	1586	1575	1388	1518	1711				
P_0	1549	1457	1380							
P_1	1540	1605	1628							
P_2	1613	1780	1750							

C.D. for P marginal means=203·4 Kg/ha.

1961

(i) 1998 Kg/ha. (ii) 226·9 Kg/ha. (iiii) Main effect of P is highly significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2057	1955	2001	1789	2066	2157	2029	1964	2019	2004
F_1	2038	1964	1974	1909	2001	2066	2029	1955	1992	1992
Mean	2047	1959	1987	1849	2033	2111	2029	1959	2005	1998
K_0	2167	1899	2021	1817	2084	2186				
K_1	2038	1928	1911	1817	1974	2086				
K_2	1936	2050	2029	1913	2041	2061				
P_0	2038	1798	1711							
P_1	2047	2047	2005							
P_2	2056	2032	2245							

C.D. for P marginal means=158·9 Kg/ha.

1962

(i) 2909 Kg/ha. (ii) 322·9 Kg/ha. (iii) Main effect of P is highly significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	3045	2799	2874	2347	3166	3234	2871	2947	2900	2906
F_1	2958	2901	2879	2699	3052	2987	3000	2877	2861	2913
Mean	3001	2850	2877	2523	3094	3111	2936	2912	2880	2909
K_0	3024	2931	2853	2602	3193	3012				
K_1	3072	2772	2891	2506	3101	3129				
K_2	2908	2846	2887	2461	2988	3192				
P_0	2679	2538	2351							
P_1	3187	3022	3074							
P_2	3138	2989	3205							

C.D. for P marginal means=226·0 Kg/ha.

1963

(i) 2834 Kg/ha. (ii) 210·5 Kg/ha. (iii) Main effect of P is highly significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2698	2836	2791	2429	2959	2938	2775	2851	2699	2775
F_1	2991	2838	2846	2573	3011	3092	2875	2955	2846	2892
Mean	2845	2837	2819	2501	2985	3015	2825	2903	2773	2834
K_0	2846	2776	2853	2355	3063	3058				
K_1	3076	2874	2759	2637	2944	3128				
K_2	2613	2861	2845	2511	2948	2859				
P_0	2714	2547	2241							
P_1	3008	2899	3043							
P_2	2813	3065	3168							

C.D. for P marginal means=147·3 Kg/ha.

1964

(i) 2392 Kg/ha. (ii) 253·4 Kg/ha. (iii) Main effect of P is highly significant. F×P interaction is significant. (iv) Av. yield of pods in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
F_0	2307	2384	2212	1927	2407	2569	2249	2394	2261	2301
F_1	2508	2478	2462	2388	2533	2527	2523	2516	2409	2483
Mean	2407	2431	2337	2158	2470	2548	2386	2455	2335	2392
K_0	2519	2394	2244	2185	2485	2488				
K_1	2439	2460	2465	2104	2597	2663				
K_2	2264	2439	2302	2184	2328	2493				
P_0	2267	2150	2056							
P_1	2444	2583	2383							
P_2	2511	2560	2572							

C.D. for P marginal means=177·3 Kg/ha.

C.D. for means in the body of F×P table=250·9 Kg/ha

Crop :- Groundnut (*Kharif*). **Ref :- T.N. 63, 64, 65(M.A.E.).**

Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type XI : To study the effect of methods of application of micro-nutrients on Groundnut.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+3 extra treatments.

(1) 6 micro-nutrients : S_1=Mu. Sul., S_2=Zn. Sul., S_3=Cu. Sul., S_4=Borax, S_5=Sod. Molybdate and S_6=All the above micro-nutrients.

(2) 2 methods of application : M_1=Soil application and M_2=Foliar spray.

Extra treatments : T_0=Control, T_1=35 Kg/ha. of each of N, P_2O_5 and K_2O and T_2=Spartin at 395 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) and (v) N.A., (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of pods. (iv) (a) 1963-1966. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

1963

(i) 2868 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of pods in Kg/ha.

T_0=2730, T_1=2826 and T_2=2934 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2811	3115	2915	2926	2940	2737	2907
M_2	2715	2863	2769	2900	2792	3043	2847
Mean	2763	2989	2842	2913	2866	2890	2877

1964

(i) 1502 Kg/ha. (ii) 233·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of pods in Kg/ha.

T_0=1627, T_1=1519 and T_2=1446 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	1377	1444	1541	1646	1539	1509	1509
M_2	1407	1706	1489	1250	1429	1605	1481
Mean	2392	1575	1515	1448	1484	1557	1495

1965

(i) 1517 Kg/ha. (ii) and (iii) N A. (iv) Av. yield of pods in Kg/ha.

T_0=1029, T_1=1379 and T_2=2016 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	n
M_1	1563	1527	1213	1442	1417	1647	1468
M_2	1656	1448	1413	1371	1733	1894	1586
Mean	1610	1488	1313	1406	1575	1770	1527

Crop :- Groundnut (*Rabi*). **Ref :- T.N. 63 64 and 65(M.A.E.).**
Site :- M.A.E. Centre, Bhavanisagar. **Type :- 'M'.**

Object :—Type XI : To study the effect of methods of application of micro-nutrients on Groundnut.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red loam. (iii) 5.1.63 ; 12.8.64 ; N.A. (iv) and (v) N.A. (vi) TMV-2. (vii) Irrigated. (viii) and (ix) N.A. (x) 19.4.63 ; 24.11.64., N.A.

2. TREATMENTS :

Same as in expt. No. type XI (Kharif) on Groundnut conducted at Bhavanisagar on page 528.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of pods in Kg/ha. (iv) (a) 1964-1966. (b) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

1963

(i) 2689 Kg/ha. (ii) 237·2 Kg/ha. (iii) No effect is significant. (iv) Av. yield of pods in Kg/ha.

T_0=2730, T_1=2634 and T_2=2742 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2618	2924	7224	2735	4179	2545	2716
M_2	2523	2672	2577	2709	2600	2825	2655
Mean	2571	2798	2650	2722	2675	2698	2686

1964

(i) 2953 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of pods in Kg/ha.

T_0=2867, T_1=3016 and T_2=2347 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2921	3273	2987	3179	2854	2897	3018
M_2	2818	3181	2990	3032	2959	2972	2992
Mean	2870	3227	2988	3106	2906	2934	3005

1965

(i) 2481 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of pods in Kg/ha.

T_0=2449, T_1=2434 and T_2=2387 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2547	2487	2506	2598	2601	2530	2545
M_2	2541	2515	2327	2463	2515	2330	2448
Mean	2544	2501	2416	2530	2558	2430	2496

Crop :- Groundnut (*Rabi*).

Ref :- T.N. 62, 63(S.F.T.) for Coimbatore ; 62, 64(S.F.T.) for S. Arcot ; 62, 63, 64(S.F.T.) for Thanjavur ; 62, 64, 65(S.F.T.) for Pondicherry ; 62, 63(S.F.T.) for Chingleput ; 62 S.F.T.) for Trichy ; 63, 64(S.F.T.) for Salem ; 62(S.F.T.) for Madurai and Tirunelveli and 64((S.F.T.) for N. Arcot.

Site :- (District) : Coimbatore, S. Arcot, Thanjavur, Pondicherry, Chingleput, Tirchy, Salem, Madurai, Tirunelveli and N. Arcot.

Type :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for coimbatore ; Deltaic Alluvium for S. Arcot ; Red loamy for Salem ; Crystal alluvium for Pondicherry ; Coastal Alluvium for Chingleput and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
N_1 =15 Kg/ha. of N.
N_2 =30 Kg/ha. of N.
P_1 =30 Kg/ha. of P_2O_5.
N_1P_1 =15 Kg/ha. of N+30 Kg/ha. of P_2O_5.
N_2P_1 =30 Kg/ha. of N+30 Kg/ha. of P_2O_5.
N_2P_2 =30 Kg/ha. of N+60 Kg/ha. of P_2O_5.
$N_2P_2K_1$=30 Kg/ha. of N+60 Kg/ha of P_2O_5+30 Kg/ha. K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1966 (1964 and 1965—N.A.) for Coimbatore ; 1962—1964 (1963. N.A.) for S. Arcot ; 1962 to 1964 for Thanjavur ; 1962 to 1966(1963 N.A.) for Pondicherry ; 1962 to 1963 for Chingleput ; 1962 only Trichy ; 1963 to 1964 for Salem ; 1962—only for Madurai and Tirunelveli ; 1964 only for N. Arcot. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Coimbatore

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	67	215	147	306	504	1313	778	362·0

Control yield=2429 Kg/ha. ; No. of trials=6.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	—21	602	621	766	734	902	981	455·9

Control yield=3102 Kg/ha. ; No. of trials=2.

S. Arcot

62(.S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	98	74	– 16	319	56	293	369	134·1

Control yield=1166 Kg/ha. ; No.of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	114	135	71	136	172	200	282	31·0

Control yield=1222 Kg/ha. ; No. trials=2.

Thanjavur

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	27	159	606	154	214	185	396	254·1

Control yield=1761 Kg/ha. ; No. of trials=4.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	345	271	0	827	815	1099	1581	304·8

Control yield=1581 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	675	1046	362	1379	1659	1655	1688	295·7

Control yield=1259 Kg/ha. ; No. of trials=3.

Pondicherry

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	901	1013	643	956	1134	1507	1803	265·1

Control yield=2001 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	320	740	590	1180	1330	1480	1970	149·0

Control yield=3700 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	175	387	262	575	587	837	800	106·0

Control yield=1787 Kg/ha. ; No. of trials=4.

Chingleput

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	215	229	125	270	274	331	359	51·7

Control yield=2262 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	169	395	250	401	411	537	686	138·2

Control yield=2870 Kg/ha. ; No. of trials=3.

Trichy

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	8	88	170	206	367	376	296	72·3

Control yield=1865 Kg/ha. ; No. of trials=5.

Salem

63(S.F.T)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	59	42	168	105	161	382	336	69·9

Control yield=1373 Kg/ha. ; No. of trials=3.

64 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	—41	32	184	604	415	362	527	42·2

Control yield =2734 Kg/ha. ; No. of trials=4.

Madurai

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	—223	135	292	—223	90	508	494	273·4

Control yield=2823 Kg/ha. ; No. of trials=2.

Tirunelveli

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha	395	345	593	863	790	1368	1671	136·6

Control yield=1927 Kg/ha. ; No. of trials=3.

N. Arcot

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	285	394	60	511	594	716	716	59·8

Control yield=1130 Kg/ha. ; No. of trials=2.

Crop :- Groundnut (*Kharif*).

Ref. :- T.N. 62, 63 (S.F.T.) for Coimbatore ; 63, 64(S.F.T.) for S. Arcot ; 62, 65(S.F.T.) for Madurai ; 62, 64(S.F.T.) for Chingleput and Salem ; 64 (S.F.T.) for R. Puram.

Site :- (District) : Coimbatore, S. Arcot, Chingleput, Salem, Madurai, and R. Puram.

Type :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red loamy for Salem ; Red and black for Coimbatore ; Deltaic alluvium for S. Arcot ; Coastal alluvium for Chingleput ; Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_1 (*Rabi*, Irrigated) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 for Coimbatore, S. Arcot, Madurai and Chingleput [1963 and 1965 N.A. for Chingleput, 1963 and 1964 N.A. for Madurai. 1964 and 1955 N.A. for Coimbatore and 1962 and 1965 N.A. for S. Arcot] 1962 to 1964 [1963 N.A. for Salem; 1964—only for R. Puram. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Salem

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	204	363	383	609	481	697	798	62·4

Control yield=1166 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	0	0	0	49	148	247	395	83·0

Control yield=2174 Kg/ha. ; No. of trials=2.

Coimbatore

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	67	215	147	306	504	590	778	49·4

Control yield=2429 Kg/ha. ; No. of trials=6.

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	122	312	210	365	378	610	616	154·8

Control yield=2034 Kg/ha. ; No. of trials=5.

S. Arcot

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	98	74	49	158	133	172	296	27·7

Control yield=1309 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	255	224	152	219	46	234	248	104·2

Control yield=1220 Kg/ha. ; No. of trials=2.

Chingleput

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	134	146	100	216	199	268	437	32·3

Control yield=1087 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	169	395	250	401	411	537	686	138·2

Control yield=2870 Kg/ha. ; No. of trials=3.

R. Puram

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	222	362	273	332	380	402	509	53·6

Control yield=1482 Kg/ha. ; No. of trials=3.

Madurai

62(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	378	554	767	362	583	839	1193	328·6

Control yield=2257 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	246	350	—30	186	483	556	800	125·8

Control yield=1846 Kg/ha. ; No. of trials=5.

Crop :- Groundnut (*Kharif*).

Ref :- T.N. 64, 65(S.F.T.) for N. Arcot ; 63, 65(S.F.T.) for S. Arcot ; and 65(S.F.T.) for others.

Site :- (District) : S. Arcot, N. Arcot, Chingleput, Coimbatore, Salem, Thanjavur, Trichy, R. Puram and Tirunelveli.

Tyre :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Deltaic alluvium for S. Arcot, Coastal alluvium for Chingleput, Red and black for Coimbatore, Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure)
N_1 =15 Kg/ha. of N
N_2 =30 Kg/ha. of N
P_1 =20 Kg/ha. of P_2O_5
N_1P_1 =15 Kg/ha. of N+20 Kg/ha. of P_2O_5
N_2P_1 =30 Kg/ha. of N+20 Kg/ha. of P_2O_5
N_2P_2 =30 Kg/ha. of N+40 Kg/ha. of P_2O_5
$N_2P_2K_1$ =30 Kg/ha. of N+40 Kg/ha. of P_2O_5+20 Kg/ha of K_2O

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (Irrigated-Rabi) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965(1963 N.A. for N. Arcot and 64 N.A. for S. Arcot) for N. Arcot, and S. Arcot and 1965 only for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

N. Arcot

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	42	93	61	137	164	227	226	32·3

Control yield=801 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E
Av. response of pods in Kg/ha.	186	376	238	721	906	918	1033	86·1

Control yield=1502 Kg/ha. ; No. of trials=6

S. Arcot

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. yield of pods in Kg/ha.	104	19	47	13	139	140	158	56·2

Control yield=1798 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	195	599	447	515	590	593	1014	185·0

Control yield=1798 Kg/ha. ; No. of trials=5.

Chingleput

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	562	425	537	237	275	487	512	394·4

Control yield=1787 Kg/ha. ; No. of trials=3.

Coimbatore

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	115	182	248	296	345	417	554	51·8

Control yield=2271 Kg/ha. ; No. of trials=6.

Salem

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	130	236	227	305	358	491	594	45·6

Control yield=1761 Kg/ha. ; No. of trials=7.

Thanjavur

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	341	438	104	501	570	705	750	129·9

Control yield=1418 Kg/ha. ; No. of trials=7.

Trichy

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	163	454	230	639	341	586	397	377·5

Control yield=1278 Kg/ha. ; No. of trials=2.

R . Puram

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha	41	85	44	139	167	247	299	43·0

Control yield=1195 Kg/ha. ; No. of trials=7.

Tirunelveli

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of pods in Kg/ha.	160	305	187	360	660	765	987	83·0

Control yield=2006 Kg/ha. ; No. of trials=6.

Crop :- Groundnut (*Rabi*).

Ref :- T.N. 62, 64(S.F.T.) for S. Arcot ; 62,63,64 (S.F.T.) for Thanjavur ; 62 (S.F.T.) for Madurai, Trichy and Tirunelveli; 64(S.F.T.) for N. Arcot; 63, 64 (S.F.T.) for Salem and 62, 63 (S.F.T.) for Chingleput and Coimbatore.

Site :- (District) : S. Arcot, Thanjavur, Madurai, Trichy, Tirunelveli, N. Arcot, Salem, Chingleput and Coimbatore.

Type :- 'M'.

Object :—Type A_2 : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Deltaic alluvium for S. Arcot ; Coastal alluvium for Chingleput ; Red and black for Coimbatore ; Red loamy for Salem and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =15 Kg/ha. of N.
P_1 =30 Kg/ha. of P_2O_5.
P_2 =60 Kg/ha. of P_2O_5.
N_1P_1 =15 Kg/ha. of N+30 Kg/ha. of P_2O_5.
N_1P_2 =15 Kg/ha. of N+60 Kg/ha. of P_2O_5.
N_2P_2 =30 Kg/ha. of N+60 Kg/ha. of P_2O_5.
$N_2P_2K_2$=30 Kg/ha. of N+60 Kg/ha. of P_2O_5+60 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in Type A_1 (Irrigated, *Rabi*) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1963 for Chingleput ; 1964 to 1966 (1965 N.A.) for N. Arcot ; 1963 to 1966 (1965 N.A.) for Salem ; 1962 to 1966 (1964 and 1965 N.A. for Coimbatore ; 1963 and 1965 N.A. for S. Arcot ; 1965 N.A. for Thanjavur, 1963 to 1965 N.A. for Trichy, Tirunelveli, and Madurai) for others. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

S. Arcot

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	107	185	165	321	348	381	519	72·2

Control yield=1077 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	32	23	55	76	74	85	210	26·2

Control yield=1222 Kg/ha. ; No. of trials=2.

Chingleput

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	251	191	188	409	312	430	417	71·4

Control yield=2651 Kg/ha. ; No. of of trials=4.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	309	309	408	432	457	444	457	117·6

Control yield=1618 Kg/ha. ; No. of trials=2.

Coimbatore

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	515	178	519	575	604	733	758	68·2

Control yield=2206 Kg/ha. ; No. of trials=6.

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	42	138	276	293	370	430	511	81·6

Control yield=3718 Kg/ha. ; No. of trials=2.

Salem

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	108	276	303	181	303	418	513	73·3

Control yield=1294 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	489	131	65	502	744	835	777	162·0

Control yield=2767 Kg/ha. ; No. of trials=4.

Tirunelveli

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2p_2K_2$	S.E.
Av. response of pods in Kg/ha.	296	444	762	760	762	1136	1446	139·2

Control yield=2026 Kg/ha. ; No. of trials=3.

N. Arcot

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	324	81	284	446	571	756	776	89·6

Control yield=1068 Kg/he. ; No. of trials=2.

Trichy

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	213	168	179	100	247	381	280	104·7

Control yield=1468 Kg/ha. ; No. of trials=2.

Thanjavur

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	144	43	174	174	169	259	496	128·7

Control yield=1668 Kg/ha. ; No. of trials=4.

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	—259	—494	—358	172	0	259	1161	358·8

Control yield=2125 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E,
Av. response of pods in Kg/ha.	262	404	626	1303	1324	1671	1819	140·3

Control yield=1185 Kg/ha. ; No. of trials=4.

Madurai

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	399	295	557	634	643	648	816	83·8

Control yield=2607 Kg/ha. ; No. of trials=2.

Crop :- Groundnut (*Kharif*).

Ref :- T.N. 62,63(S.F.T.)for Coimbatore; 62, 64(S.F.T.) for Chingleput and Salem ; 63(S.F.T.) for S. Arcot ; 62, 65 (S.F.T.) for Madurai; 64 (S.F.T.) for R. Puram.

Site :- (District) : Coimbatore, Chingleput, Salem, S. Arcot, Madurai, and R. Puram.

Type :- 'M'.

Object :—Type A_2 : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Deltaic alluvium for S, Arcot ; Coastal alluvium for Chingleput ; Red and black for Coimbatore ; Red loamy for Salem and Red Sandy for others. (iii) to (vi) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_2(*Rabi*, Irrigated) on page 537.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1962 to 1963 for Coimbatore ; 1963 only for S. Arcot ; 1962 and 1965 for Madurai ; 1962 to 1966 (1963 and 1965 N.A.) for Chingleput and Salem ; 1964 to 1966 (1965 N.A.) for R. Puram. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

S. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	14	0	39	108	84	133	420	134·7

Control yield=1359 Kg/ha. ; No. of trials=2.

Chingleput

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	145	150	184	268	257	296	417	52·4

Control yield=1170 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	224	372	450	524	504	501	751	227·4

Control yield=2899 Kg/ha. ; No. of trials=3.

Coimbatore

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	267	88	223	358	336	538	672	84·5

Control yield=2152 Kg/ha. ; No. of trials=2.

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	374	276	418	508	520	636	941	90·0

Control yield=1948 Kg/ha. ; No. of trials=5.

Salem

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	217	231	401	337	400	511	584	71·2

Control yield=1255 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	197	247	98	247	345	494	444	98·8

Control yield=1976 Kg/ha. ; No. of trials=2.

R. Puram

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	217	217	222	288	374	405	410	130·8

Control yield=1608 Kg/ha. ; No. of trials=5.

Madurai

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	359	158	525	525	429	535	1204	251·0

Control yield=2521 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	150	120	247	487	500	650	697	102·6

Control yield=1325 Kg/ha. ; No. of trials=4.

Crop :- Groundnut (*Kharif*).

Ref :- T.N. 64, 65(S.F.T.) for N. Arcot ; 63, 64, 65 (S.F.T.) for S. Arcot; 65(S.F.T.) for Chingleput and others.

Site :- (District) : N. Arcot, S. Arcot, Chingleput, Coimbatore, Salem, R. Puram. Thanjavur, Trichy and Tirunelveli.

Type :- 'M'.

Object :—Type A_2 : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Deltaic alluvium for S. Arcot, Coastal alluvium for Chingleput, Red and black for Coimbatore and Red Sandy for others. (iii) to (iv) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=15 Kg/ha. of N.
P_1=20 Kg/ha. of P_2O_5.
P_2=40 Kg/ha. of P_2O_5.
N_1P_1=15 Kg/ha. of N+20 Kg/ha. of P_2O_5.
N_1P_2=15 Kg/ha. of N+40 Kg/ha. of P_2O_5.
N_2P_2=30 Kg/ha. of N+40 Kg/ha. of P_2O_5.
$N_2P_2K_2$=30 Kg/ha. of N+40 Kg/ha. of P_2O_5+40 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in Type A_1(Irrigated, *Rabi*) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965 only for Chingleput; 1964 to 1965 for N. Arcot; 1963 to 1966 for S. Arcot; 1965 to 1966 for R. Puram ; 1965 only for others (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

S. Arcot

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	—67	62	75	74	306	180	—31	100·4

Control yield=888 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	431	251	339	314	224	258	167	142·2

Control yield=1220 Kg/ha. ; No. of trials=2.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	364	235	377	557	627	781	912	135·1

Control yield=1827 Kg/ha.; No. of trials=5.

Chingleput

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	375	562	562	612	462	500	587	339·9

Control yield=1800 Kg/ha.; No. of trials=3.

Coimbatore

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	73	132	189	201	249	361	380	63·1

Control yield=2357 Kg/ha. ; No. of trials=7.

N. Arcot

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	47	27	87	164	182	262	278	27·1

Control yield=826 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	155	114	130	292	433	816	1312	143·7

Control yield=1579 Kg/ha. ; No. of trials=6.

Salem

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	116	94	297	327	311	561	552	99·4

Control yield=1827 Kg/ha. ; No. of trials=7.

Thanjavur

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	595	159	336	873	963	1013	1115	74·5

Control yield=1461 Kg/ha. ; No. of trials=6.

Trichy

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	93	294	399	371	382	430	765	161·2

Control yield=1239 Kg/ha. ; No. of trials=2.

R. Puram

65(S.F T.) [Rabi]

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	72	89	281	150	219	433	544	60·7

Control yield=1289 Kg/ha. ; No. of trials=7.

Tirunelveli

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of pods in Kg/ha.	361	227	511	488	783	883	1116	78.8

Control yield=1861 Kg/ha. ; No. of trials=6.

Crop :- Groundnut (*Kharif*).

Ref. :- T.N. 62, 64(S.F.T.) for Chingleput ; 63(S.F.T.) for Coimbatore ; 62, 65(S.F.T.) for Madurai ; 63, 64(S.F.T.) for S. Arcot & 62(S.F.T.) for Salem.

Site :- (District) : Chingleput, Coimbatore, Madurai, Salem, and S. Arcot.

Type :- 'M'.

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red and black for Coimbatore ; Red loamy for Salem ; Deltaic alluvium for S. Arcot ; Coastal alluvium for Chingleput and Red sandy for Madurai. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
N_1 =15 Kg/ha. of N.
K_1 =30 Kg/ha. of K_2O.
K_2 =60 Kg/ha. of K_2O.
N_1K_1 =15 Kg/ha. of N+30 Kg/ha. of K_2O.
N_1K_2 =15 Kg/ha. of N+60 Kg/ha. of K_2O.
N_2K_2 =30 Kg/ha. of N+60 Kg/ha. of K_2O.
$N_1P_1K_1$ =15 Kg/ha. of N+30 Kg/ha. of P_2O_5+30 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (Irrigated, *Rabi*) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 only for Salem; 1963 only for Coimbatore ; 1962 to 1966 (1963 and 1965 N.A. for Chingleput, 1963 and 1964 N.A. for Madurai and 1962 and1965 N.A. for S. Arcot. for others. (b) N.A (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	367	269	275	242	468	556	676	99·9

Control yield=1847 Kg/ha. ; No. of trials=6.

Salem

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	293	63	184	306	346	407	580	49·8

Control yield=1068 Kg/ha. ; No. of trials=5.

S. Arcot

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	74	24	0	93	84	98	148	20·1

Control yield=1334 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	144	—35	120	57	1	242	192	150·0

Control yield=1091 Kg/ha. ; No. of trials=2.

Chingleput

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	192	85	156	212	163	358	333	71·9

Control yield=1073 Kg/ha. ; No. of trials=2.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	261	12	252	296	296	525	454	210·7

Control yield=2897 Kg/ha. ; No. of trials=3.

Madurai

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	306	−36	172	575	369	528	869	226·5

Control yield=2493 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	260	103	155	78	67	317	387	155·0

Control yield=1558 Kg/ha. ; No. of trials=4.

Crop :- Groundnut (*Rabi*).

Ref :- T.N. 62, 63(S.F.T.) for Chingleput and Coimbatore ; 62(S.F.T.) for Madurai, Tirunelveli, S. Arcot and Trichy, 64 (S.F.T.) for N. Arcot ; 63, 64 (S.F.T.) for Salem ; and 62, 63, 64 (S.F.T.) for Thanjavur.

Site :- (District) : Chingleput, Coimbatore, Madurai, N. Arcot, Salem, S. Arcot, Thanjavur, Tirunelveli and Trichy.

Type :- 'M'.

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore, Red loamy for Salem, Deltaic alluvium for S. Arcot, Coastal alluvium for Chingleput and Red sandy for others. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_3 (Kharif, Irrigated) on page 543.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1963 for Chingleput and Coimbatore ; 1962 only for Madurai Tirunelveli, S. Arcot and Trichy. 1964 to 1966 (1965 N.A.) for N. Arcot ; 1963 to 1966 (1965 N.A.) for Salem ; 1962 to 1966 (1965 N.A.) for Thanjavur ;

5. RESULTS :

Coimbatore

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	139	117	58	351	388	449	636	81·6

Control yield=2320 Kg/ha. ; No. of trials=6.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	77	121	180	166	189	242	346	28·2

Control yield=3476 Kg/ha. ; No. of trials=2.

Salem

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	105	75	105	197	184	253	197	53·3

Control yield=1281 Kg/ha.; No. of trials=3.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	494	197	296	428	527	724	757	82·3

Control yield=2833 Kg/ha. ; No. of trials=3.

S. Arcot

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	128	143	167	196	280	302	388	65·5

Control yield=1202 Kg/ha. ; No. of trials=4.

Chingleput

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	172	94	149	251	206	284	362	76·9

Control yield=1963 Kg/ha. ; No. of trials=5.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	321	110	197	357	345	296	222	110·0

Control yield=1482 Kg/ha.; No. of trials=2

Thanjavur

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	4	103	173	218	329	393	395	52·7

Control yield=1451 Kg/ha.; No. of trials=4.

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	123	197	308	926	976	1260	1865	325·4

Control yield=1816 Kg/ha.; No. of trials=4.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	304	380	647	1057	1112	1312	1557	91·2

Control yield=1316 Kg/ha No.of trials=5.

Tirchy

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	—88	15	179	75	119	239	119	102·1

Control yield=1897 Kg/ha.; No. of trials=3.

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	73	510	325	856	763	510	1016	112·6

Control yield=2009 Kg/ha.; No. of trials=3.

Madurai

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	269	—81	129	247	317	310	487	80·2

Control yield=2774 Kg/ha. ; No. of trials=2.

N. Arcot

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	327	266	347	390	369	490	573	35·1

Control yield=1129 Kg/ha. ; No. of trials=2.

Crop : Groundnut (*Kharif*).

Ref :- T.N. 63, 65 (S.F.T.) for S. Arcot, 64, 65 (S.F.T.) for N. Arcot ; 65 (S.FT.) for Salem and Chingleput.

Site :- (District) : Chingleput, N. Arcot, Salem and S. Arcot.

Type :- 'M'.

Object :— Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Coastal alluvium for Chingleput ; Red loamy for Salem ; Deltaic alluvium for S. Arcot and Red Sandy for N. Arcot. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=15 Kg/ha. of N.
K_1=20 Kg/ha. of K_2O.
K_2=40 Kg/ha. of K_2O.
N_1K_1=15 Kg/ha. of N+20 Kg/ha. of K_2O.
N_1K_2=15 Kg/ha. of N+40 Kg/ha. of K_2O.
N_2K_2=30 Kg/ha. of N+40 Kg/ha. of K_2O.
$N_1P_1K_1$=15 Kg/ha. of N+20 Kg/ha. of P_2O_5+20 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in type A_1 (Irrigated—*Rabi*) on page 530.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 (1964 N A.) for S. Arcot, 1964 to 1965 for N. Arcot and 1965 for Salem and Chingleput. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Chingleput

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	375	575	400	525	375	387	556	244.9

Control yield=1850 Kg/ha. ; No. of trials=3.

S. Arcot

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	289	—93	149	438	533	742	974	99·7

Control yield=1184 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	500	331	296	610	622	946	916	124·7

Control yield=1678 Kg/ha. ; No. of trials=5.

Salem

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	155	102	205	222	294	361	433	59·0

Control yield=1802 Kg/ha. No. of trials=7.

N. Arcot

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	51	38	69	90	111	166	149	17.1

Control yield=754 Kg/ha. No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	228	187	315	670	477	605	699	208·3

Control yield=1527 Kg/ha. ; No. of trials=6.

Crop :- Groundnut (*Rabi*). **Ref :- T.N. 65(S.F.T.)**

Site :- (District) : Coimbatore, Tirunelveli, Trichy, Thanjavur, & R. Puram. **Type :- 'M'.**

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore and Red sandy for others. (iii) to (vi) N.A. (vii) Unirrigated (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A_3 (Kharif—Unirrigated) on page 547.

4. GENERAL :

(i) to (iii) N.A. (iv) 1965—only for Coimbatore, Thanjavur and Tirunelveli ; 1965 to 1966 for Trichy and R. Puram (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Coimbatore

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	81	62	119	172	168	252	362	18·8

Control yield=2004 Kg/ha. ; No. of trials=7.

Tirunelveli

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	277	72	222	416	533	683	883	55·6

Control yield=1899 Kg/ha. No. of trials=6.

Trichy

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	431	159	272	249	589	952	593	108·5

Control yield=1270 Kg/ha. ; No. of trials=2.

Thanjavur

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	405	260	398	430	595	769	737	91·0

Control yield=1700 Kg/ha. ; No. of trials=6.

R. Puram

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of pods in Kg/ha.	104	66	78	137	183	175	244	50·8

Control yield=1123 Kg/ha. ; No. of trials=7.

Crop :- Groundnut. **Ref :- T.N. 60(S.F.T.).**

Site :- (District) : Chingleput, Salem, Thanjavur, Tiruchirapalli and Tirunelveli. **Type :- 'M'.**

Object :—Type A : To study the response of Groundnut to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Coastal for Chingleput and Red for others. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
n =22·4 Kg/ha. of N as A/S.
p =33·6 Kg/ha. of P_2O_5 as Super.
k =33·6 Kg/ha. of K_2O as Mur. Pot.
np =22·4 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super.
nk =22·4 Kg/ha. of N as A/S+33·6 Kg/ha. of K_2O as Mur. Pot.
pk =33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot.
npk=22·4 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal, 8 on *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the four zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5 RESULTS :

			Av. response in Kg/ha. to								
			Main effect				Interaction effect				
District	No. of trials	Control yield	n	p	k	S.E.	np	nk	pk	npk	S.E.
Chingleput	2	2350	350	300	250	91·0	—200	—30	—40	90	67·0
Salem	3	3400	10	480	390	89·0	—130	—150	—310	170	27·0
Thanjavur	2	1320	60	270	180	95·0	40	10	—60	—60	30·0
Tiruchirapalli	2	3010	140	110	150	9·0	—50	50	0	– 20	25·0
Tirunelveli	2	1480	260	120	80	160·0	—210	—100	60	100	77·0

Crop :- Groundnut. **Ref :- T.N. 61(S.F.T).**

Site :- (District) : S. Arcot, Thanjavur and Tiruchirapalli. **Type :- 'M'.**

Object :—Type A : To study the response of Groundnut to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Coastal for Thanjavur and Red soil for others. to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in Type A (1960) above.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

			Av. response in Kg/ha. to								
			Main effect				Interaction effect				
District	No of trials	Control yield	n	p	k	S.E.	np	nk	pk	npk	S.E.
S. Arcot	12	2250	220	460	420	46·0	0	—10	20	140	48·0
Thanjavur	7	1700	50	110	70	14·0	—20	20	0	20	18·0
Tiruchirapalli	4	1590	140	150	70	32·0	10	50	—50	10	29·0

Crop :- Groundnut. **Ref :- T.N. 61(S.F.T).**

Site :- (District) : Coimbatore, S. Arcot, Thanjavur and Tiruchirapalli. **Type :- 'M'.**

Object :—Type B : To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red and black for Coimbatore ; Coastal for Thanjavur and Red for others. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

o =Control (no manure).
n_1 =22·4 Kg/ha. of N as A/S.
n_2 =44·8 Kg/ha. of N as A/S.
n_1' =22·4 Kg/ha. of N as Urea.
n_2' =44·8 Kg/ha. of N as Urea.
n_1''=22·4 Kg/ha. of N as A/S/N.
n_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in Type A (1960) on page 550.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961. (b) N.A. (c) Nil. (v) to (vii) Nil

5. RESULTS :

Av. yield of grain in K/ha.

District	No. of trials	o	n_1	n_2	n_1'	n_2'	n_1''	n_2''	S.E.
Coimbatore	6	3990	3120	3290	3290	3370	3290	3420	63·6
S. Arcot	10	2460	2930	2970	3000	3070	3210	3340	99·0
Thanjavur	5	1540	1630	1750	1620	1720	1680	1750	33·9
Tiruchirapalli	5	1910	2060	2230	1990	2050	1990	2040	49·5

Crop :- Groundnut (*Summer*). **Ref :- T.N. 65(29).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :— To find out the effect of mulching and to determine the optimum plot size with the proper system of irrigation to give maximum yield.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Groundnut. (c) 12·5 tonnes/ha. of F.Y.M.+34 Kg/ha. of P_2O_5+50 Kg/ha. of K_2O. (ii) Red gravelly loam. (iii) 20, 21.1.65. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 110 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+34 Kg/ha. of P_2O_5+50 Kg/ha. of K_2O and 17 Kg/ha. of N. (vi) TMV-2. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) 10 cm. (x) 6.5.65.

2. TREATMENTS :

Main-plot treatments :

3 kinds of mulches : M_1=Dust, M_2=Straw and M_3=Leaf.

Sub-plot treatments

3 net-plot sizes : S_1=3·0 m.×3·1 m., S_2=4·3 m.×4·4 m., S_3=6·2 m.×6·3 m.

The mulches were applied around the plants to a depth of 2·5 cm. 30 days afer sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 sub-plots/main-plot. 3 main-plots/replication, (b) N.A. (iii) 6. (iv) (a) S_1=3·2 m. ×3·2 m. ; S_2=4·6 m.×4·6 m. ; S_3=6·4 m.×6·4 m. (b) As per treatments. (v) One row alround. (vi) Yes.

4. GENERAL·

(i) Good. (ii) Nil. (iii) Yield of dry pods. (iv) (a) 1965-contd. (b) and (c) Nil, (v) to (vii) Nil.

5. RESULTS :

(i) 3459 Kg/ha. (ii) (a) 366·0 Kg/ha. (b) 301·5 Kg/ha. (iii) Main effect of M S and interaction M×S are significant. (iv) Av. yield of pod in Kg/ha.

	M_1	M_2	M_3	Mean
S_1	3066	3765	3340	3390
S_2	3508	3436	3650	3531
S_3	3148	3545	3676	3456
Mean	3241	3582	3555	3459

C.D. for M marginal means =271·2 Kg/ha.
C.D. for S means at the same level of M =355·4 Kg/ha.
C.D. for M means at the same level of S =397·0 Kg/ha.

Crop :- Groundnut (*Main*). **Ref :- T.N. 60(129).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :— To determine the optimum period of sowing in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Ragi. (c) 125 Q/ha. of F.Y.M.+22 Kg/ha. of N as A/S. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 125 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+22 Kg/ha. of N as A/S. (vi) TMV-2. (vii) Irrigated. (viii) 2 weedings. (ix) 15 cm. (x) 1.4.61 to 27.5.61.

2. TREATMENTS :

Six dates of sowing : T_1=10.12.1960, T_2=20.12.1960, T_3=30.12.1960, T_4=10.1.1961, T_5=20.1.1961 and T_6=30.1.1961.

3. DESIGN :

(i) R.B.D. (a) 5. (b) N.A. (iii) 6. (iv) (a) 11·9 m.×4·3 m. (b) 11·6 m.×4·0 m. (v) 15 cm.×15 cm. (vi) Yes

4. GENERAL :

(i) Good. (ii) B.H.C. 10% dust against jassid. (ii) Yield of pods. (iv) (a) 1960-64 (modified in 62, 64). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Expt. failed in 1961.

5. RESULTS :

(i) 1494 Kg/ha. (ii) 516·4 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1548	1615	1703	1548	1724	828

C.D.=614·1 Kg/ha.

Crop :- Groundnut (*II Season*). **Ref :- T.N. 62(52).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :— To determine the optimum period of sowing for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tobacco. (iii) 240 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 112 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 240 Q/ha. of F.Y.M. +56 Kg/ha. of A/S+140 Kg/ha. of Super+56 Kg/ha. of Potash. (vi) TMV-2. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 17 cm. (x) 20.4.63 to 7.6.63.

2. TREATMENTS :

Six dates of sowing : T_1=30.12.1962, T_2=10.1.1963, T_3=20.1.1963, T_4=30.1.1963, T_5=10.2.1963 and T_6= 20.2.1963.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 11·9 m.×4·3 m. (b) 40·5 sq. m. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1960-64 (Treatments modified in 62, 64). (b) No. (c) Nil. (v) and (vi) Nil. (vii) Expt. failed in 1961.

5. RESULTS :

(i) 1004 Kg/ha. (ii) 196·0 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1401	1521	1527	765	350	457

C.D.=295·3 Kg/ha.

Crop :- Groundnut (*Summer*). **Ref :- T.N. 63(60).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :— To determine the optimum period of sowing for getting higher yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tobacco. (c) 240 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 112 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 240 Q/ha. of F.Y.M. +56 Kg/ha. of A/S+140 Kg/ha. of Super+56 Kg/ha. of K_2O. (vi) TMV-2. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 22 cm. (x) 20.4.63 to 7.6.63.

2. TREATMENTS :

6 dates of sowing : T_1=10.12.1963, T_2=20.12.1963, T_3=30.12.1963, T_4=10.1.1964, T_5=20.1.1964 and T_6=30.1.1964.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 13·4 m.×3·1 m. (b) 13·1 m.×2·6 m. (v) 15 cm.×25 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1960 to 1964 (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1390 Kg/ha. (ii) 256·2 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1522	1639	1595	1433	1266	884

C.D.=304·7 Kg/ha.

Crop :- Groundnut (*Summer*). **Ref :- T.N. 64(70).**

Site :- Agri. Res. Stn., Bavanisagar. **Type :- 'C'.**

Object :—To determine the optimum period of sowing for getting higher yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tobacco (Nursery). (c) 240 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 112 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 240 Q/ha. of F.Y.M.+56 Kg/ha. of A/S+140 Kg/ha. of Super+56 Kg/ha. of K_2O. (vii) TMV—2. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 24 cm. (x) 14.4.65 to 26.5.65.

2. TREATMENTS :

6 dates of sowing : T_1=20.12.64, T_2=30.12.64, T_8=10.1.65, T_4=20.1.65, T_5=30.1.65 and T_6=10.2.65.

3. DESIGN :

(i) R.B.D.. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 4·9 m.×2·4 m. (b) 4·4 m.×2·1 m. (v) 23 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1960—1964 (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1157 Kg/ha. (ii) 277·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1471	1789	1382	857	659	783

C.D.=330·4 Kg/ha.

Crop :- Groundnut (*Summer*). **Ref :- T.N. 60(32).**

Site :- Agri. Res. Stn., Bhavainsagar. **Type :- 'C'.**

Object :—To find out the optimum spacing for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Red gravelly loam. (iii) 4.2.1960, (iv) (a) 2 to 3 ploughings. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) 25 C.L./ha. of compost. (vi) TMV—2. (vii) Irrigated. (viii) 2 hoeings and 2 weedings and 1 earthing. (ix) 7 cm. (x) 8, 9.6.1960.

2. TREATMENTS :

5 spacings : S_1=15·2 cm.×15·2 cm., S_2=15·2 cm.×22·9 cm., S_3=22·9 cm.×22·9 cm., S_4=22·9 cm.×30·5 cm. and S_5=30·5 cm.×30·5 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) 11·0 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Not satisfactory. (ii) Nil. (iii) Yield of pods. (iv) (a) 1955 to 1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 718 Kg/ha. (ii) 115·0 Kg/ha. (iii) Treatment differences are highly significant. (lv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4	S_5
Av. yield	695	878	758	687	570

C.D.=138·5 Kg/ha.

Crop :- Groundnut (*Summer*). **Ref :- T.N. 64(47).**

Site :- Agri. Res. Stn.. Bhavanisagar. **Type :- 'C'.**

Object :—To determine the optimum period of sowing for getting higher yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of F.Y.M. (ii) Red gravelly soil. (iii) As per treatments. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 135 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+34 Kg/ha. of P_2O_5. (vi) TMV—2. (vii) Irrigated. (viii) 2 weedings. (ix) 15 cm. (x) 14.4.65 to 26.5.65.

2. TREATMENTS :

6 dates of sowing/dates of harvest : T_1=20.12.64/14.4.65, T_2=30.12.64/24.4.65, T_3=10.1.65/30.4.65, T_4=20.1.65/6.5.65, T_5=30.1.65/16.5.65 and T_6=10.2.65/26.5.65.

3. DESIGN :

(i) R.B.D (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 5·5 m.×2·7 m. (b) 4·9 m.×2·4 m. (v) 30 cm.×15 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1960 to 64 (Treatments modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1243 Kg/ha. (ii) 286·9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of dry pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1476	1797	1387	1354	660	785

C.D.=341·2 Kg/ha.

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 65(30).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'C'.**

Object :—To find out the effect of mulching and to determine the optimum plot size with the proper system of irrigation to give maximum yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 12·5 m. tonnes/ha. of F.Y.M.+34 Kg/ha. of P_2O_5+50 Kg. of K_2O. (ii) Red gravelly loam. (iii) 6.8.65. (iv) (a) 4 ploughings. (b) Dibbling in lines. (c) 110 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M.+34 Kg/ha. of P_2O_5+50 Kg/ha. of K_2O and 17 Kg/ha. of N. (vi) TMV—2. (vii) Irrigated. (viii) 2 weedings and hoeings. (ix) 29 cm. (x) 23.11.65.

2. TREATMENTS :

Same as in expt. No. 65(29) on page 552.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) As per treatments. (v) 1 row in between 2 plots. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1965—contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1983 Kg/ha. (ii) (a) 184·6 Kg/ha. (b) 183·7 Kg/ha. (iii) Main effect of S is highly significant. (iv) Av. yield of pods in Kg/ha.

	M_1	M_2	M_3	Mean
S_1	1881	1894	1851	1875
S_2	1937	2046	2046	2010
S_3	2091	2122	1977	2063
Mean	1970	2021	1958	1983

C.D. for S marginal means=125·0 Kg/ha.

Crop :- Groundnut (*Main*). **Ref :- T.N. 61(92).**

Site :- Groundnut Res. Stn., Pollachi. **Type :- 'C'.**

Object :—To find out the effect of spacing on yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Horse gram. (c) Nil. (ii) Red loam. (iii) 19.5.61. (iv) (a) 2 ploughings with country plough. (b) Dibbling. (c) 136 Kg/ha. (d) As per treatments. (e) 1. (v) 60 Q/ha. of F.Y,M.+11 Kg/ha. of N+22 Kg/ha. of P_2O_5+33 Kg/ha. of K_2O. (vi) Pollachi Red Groundnut. (vii) Unirrigated. (viii) 2 hand weedings. (ix) 62 cm. (x) 22.9.61.

2. TREATMENTS :

3 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×10 cm. and S_3=30 cm.×8 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) 14·6 m.×2·7 m. (b) S_1=14·3 m.×2·4 m.; S_2=14·4 m.× 2·3 m. and S_3=14·5 m.×2·1 m. (v) 1 row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Flowering, productive phase studies and pod yield. (iv) (a) 1961 only. (b)— (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 582 Kg/ha. (ii) 94·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3
Av. yield	578	598	570

Crop -: Groundnut (*Main*). **Ref :- T.N. 62(131).**
Site :- Groundnut Res. Stn., Pollachi. **Type :- 'C'.**

Object :—To find out the effect of spacing on yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Groundnut—Horse gram. (b) Horse gram. (c) Nil. (ii) Red loam. (iii) 20, 21.4.62. (iv) (a) 4 ploughings with country plough. (b) Dibbling. (c) 68 to 136 Kg/ha. (according to spacing). (d) As per treatments. (e) 1. (v) 80 Q/ha. of C.M.+3 Kg/ha. of N+3 Kg/ha. of P_2O_5+6 Kg/ha. of K_2O as standard mixture+Mur. Pot. at 60 Kg/ha. (vi) TMV—2. (vii) Unirrigated. (viii) 2 weedings with hand hoe. (ix) 49 cm. (x) 6.9.62.

2. TREATMENTS :

8 spacings : S_1=15 cm.×15 cm., S_2=30 cm.×8 cm., S_3=23 cm.×11 cm., S_4=30 cm.×11 cm., S_5=46 cm.× 8 cm., S_6=23 cm.×15 cm. S_7=30 cm.×15 cm. and S_8=46 cm.×10 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) Different for different treatments. (b) 11·0 m.×2·7 m. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Flowering, productive phase and pod yield. (iv) (a) 62 only. (b) — (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 613 Kg/ha. (ii) 192·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8
Av. yield	629	652	524	709	653	466	713	556

Crop :- Groundnut (*Main*). **Ref :- T.N. 65(14).**

Site :- Groundnut Res. Stn., Pollachi. **Type :- 'C'.**

Object : To find out the effect of different spacings on yield of Groundnut in the tract and to determine the optimum spacing.

1. BASAL CONDITIONS :

(i) (a) Groundnut—Horse gram. (b) Horse gram. (c) Nil. (ii) Red loam. (iii) 29, 30.4.65. (iv) (a) 2 ploughings with country plough. (b) By dibbling. (c) 45 Kg to 135 Kg/ha. (d) As per treatments. (e) 1. (v) 45 Q/ha. of compost+NPK @ 11 : 22 : 33 Kg/ha. in the form of A/S, Super and Mur. Pot. (vi) TMV—2. (vii) Rainfed. (viii) 2 hand weedings. (ix) 26·5 cm. (x) 17, 18.9.65.

2. TREATMENTS :

8 spacings : T_1=15 cm. × 15 cm., T_2=23 cm. × 15 cm., T_3=30 cm. × 15 cm., T_4=30 cm. × 23 cm., T_5=23 cm. × 23 cm., T_6=30 cm. × 8 cm., T_7=38 cm. × 8 cm. and T_8=38 cm. × 15 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 75·6 m. × 5·3 m. (iii) 6. (iv) (a) Different for different treatments. (b) 9·2 cm. × 4·6 cm. (v) 1 row alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of pods. (iv) (a) 1965—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 964 Kg/ha. (ii) 138·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1011	1028	990	992	975	1004	819	890

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 60(8).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'C'.**

Object :—To determine the economic cultural practices for Groundnut.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Groundnut. (c) 37 C.L/ha. of M.C. (ii) Red loamy soil. (iii) 23.8.60. (iv) (a) As per treatments. (b) Dibbling. (c) 90 Kg/ha. (d) 46 cm. × 10 cm. (e) N.A. (v) 37 C.L/ha. of M.C. applied 9 days before sowing and incorporated during the last ploughing. (vi) TMV - 3. (vii) Unirrigated. (viii) As per treatments. (ix) 85 cm. (x) 4.1.61.

2. TREATMENTS :

Main-plot treatments :

4 ploughings : M_1=4 ploughings with country plough, M_2=8 ploughings with country plough, M_3= 4 ploughings with mould board plough and M_4=8 ploughings with mould board plough.

Sub-plot treatments :

2 intercultural operations : D_1=Working danthis twice and D_2=Working danthis four times.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 21·3 m. × 5·9 m. (b) 21·3 m × 5·5 m. (v) 2 rows on either side. (vi) Yes.

4. GENERAL :

(i) Not satisfactory. (ii) Severe incidence of Surul Poochi and Tikka leaf spot. Controlled by dusting D.D.T. 5 percent and Bordeaux Mixture 3/4 percent respectively. (iii) Flower counts, plant heights, and pod yield. (iv) (a) 1957—60. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 561 Kg/ha. (ii) (a) 119·9 Kg/ha. (b) 49.9 Kg/ha. (iii) Main effect of D alone is significant. (iv) Av. yield of pods in Kg/ha.

	M_1	M_2	M_3	M_4	Mean
D_1	578	568	553	625	581
D_2	512	541	509	604	541
Mean	545	554	531	614	561

C.D. for D marginal means=38·5 Kg/ha.

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 60(10).**

Site :- Agri. Res. Stn., Tindivanam. **Type :- 'C'.**

Object :—To determine the economic spacing for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 37 C.L/ha. of M.C. (ii) Red loamy. (iii) 22.8.60. (iv) (a) 2 ploughings with Cooper plough and 3 with junior hoe. (b) Dibbling. (c) 134 Kg/ha. (d) As per treatments. (e) 1. (v) 37 C.L/ha. of M.C. applied 7 to 8 days before sowing and incorporated with the soil by working junior hoe. (vi) TMV—2 (early). (vii) Unirrigated. (viii) Danthis were worked twice in S_3 and S_4 plots while two hand weedings and hoeings were given to S_1 and S_2 plots. (ix) 83 cm. (x) 4.12.60.

2. TREATMENTS :

4 spacings : S_1=15·2 cm.×15·2 cm., S_2=22·9 cm.×10·2 cm., S_3=30·5 cm.×7·6 cm. and S_4=45·7 cm.× 30·5 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 20·7 m.×5·5 m. (b) 18·3 m.×3·7 m. (v) N.A. (vi) Yes.

4. GENERAL

(i) N.A. (ii) A severe attack of Surul Poochi controlled by dusting D.D.T. 5% and a severe attack of *tikka* controlled by spraying Bordeaux Mixture 3/4 percent. (iii) Flower counts, plant height measurement, and pod yield. (iv) (a) 1957 to 60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 451 Kg/ha. (ii) 48·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	429	462	479	433

Crop :- Groundnut (*Summer*). **Ref :- T.N. 60(73).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'C'.**

Object :—To find out the optimum spacing for Groundnut under irrigated conditions.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Groundnut. (c) N.A. (ii) Red sandy loam. (iii) 15.2.60/Nil. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 1. (v) 124 Q/ha. of F.Y.M. (vi) TMV—4. (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 13 cm. (x) 8.7.60.

2. TREATMENTS :

4 spacings : S_1=30 cm.×30 cm. (control), S_2=38 cm.×25 cm., S_3=46 cm.×20 cm. and S_4=61 cm.×15 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) 10·1 m.×5·5 m. (b) 9·1 m.×4·6 m. (v) 2 rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of sural and wilt were noticed in all the plots. (iii) Yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 1039 Kg/ha. (ii) 279·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	1061	1047	1069	980

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 62(84), 63(105), 64(110).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'C'.**

Object :—To study the relative performance of seeds of dry and irrigated groundnut sown under rainfed conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut for 62, 64, Castor for 63. (c) 62·5 Q/ha. of F.Y.M. for 62, 63 and 125 Q/ha. of F.Y.M. for 64. (ii) Red sandy loam. (iii) 25.7.62; 7.7.63; 28.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 62·5 Q/ha. of F.Y.M. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 82 cm. ; 75 cm. ; 67 cm. (x) 3.11.62; 6.11.63; 7.12.64.

2. TREATMENTS :

3 types of seed material : S_1=Seeds obtained from March irrigated produce, S_2=Seeds obtained from December irrigated produce and S_3=Seeds obtained from rainfed produce.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 11·0 m.×11·0 m. (iii) 6 for 62, 63 and 8 for 64. (iv) (a) 11·0 m.×3·7 m. (b) 10·4 m.×3·1 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Folidol sprayed against mild attack of 'surul'. (iii) Yield of pods. (iv) (a) 1962-64. (b) No. (c) Combined analyis presented under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are hetrogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 1341 Kg/ha. (ii) 801·7 Kg/ha. (based on 4 d.f. made up of interaction of Treatments×years). (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3
Av. yield	1480	1236	1307

Years	S_1	S_2	S_3	Sig.	G.M.	S.E./plot
1962	922	1045	1098	N.S.	1022	114·1
1963	921	1044	1097	N.S.	1021	113·9
1964	2319	1524	1622	**	1822	312·3
Pooled	1480	1236	1307	N.S,	1341	801·7

Crop :- Groundnut (*Summer*). **Ref :- T.N. 61(61), 62(86), 62(88), 64(112).**

Site :- Reg. Res. Stn., Tindivanam. Type :- 'C'.

Object : –To determine the optimum spacing required for spreading variety of groundnut under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of F.Y.M. (ii) (a) Clay loam for 62(86) ; Red sandy loam for others. (iii) 25.2.61 ; 18.3.62 ; 3.12.62 ; 19.2.64. (iv) (a) 4 ploughings with Mould Board plough for 62(88) and with Cooper plough for others. (b) Dibbling by wooden pegs. (c) 135 Kg/ha. (d) As per treatments. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV-4 (late). (vii) Irrigated. (viii) 2 hoeings+2 weedings. (ix) 10 cm. ; 23 cm. ; 22 cm. ; 3 cm. (x) 18.7.61 ; 30.7.62 ; 25.5.63 ; 11.7.64.

2. TREATMENTS :

4 spacings : S_1=23 cm.×23 cm., S_2=30 cm.×15 cm., S_3=38 cm.×10 cm. and S_4=46 cm.×8 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 24·4 m.×7·9 m. (iii) 4 for 62(86) ; 5 for 62(88) ; 6 for others. (iv) (a) 7·9 m.×6·1 m. (b) 7·3 m.×4·6 m. (v) 30 cm.×76 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Severe attack of wilt for 62(86) ; Incidence of Surul for others which was controlled by spraying D.D.T. (iii) Yield of pods. (iv) (a) 1961-1964. (b) No. (c) Nil. (v) N.A. (vi) Very low yield due to attack of wilt and severe summer conditions for 62(86) ; severe drought conditions prevailed for 64(112). (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

61(61)

(i) 837 Kg/ha. (ii) 189·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	865	722	887	872

62(86)

(i) 94 Kg/ha. (ii) 22·8 Kg/ha. (iii) Treatment differences are significant. [(iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	65	74	96	142

C.D.=36·4 Kg/ha.

62(88)

(i) 1528 Kg/ha. (ii) 222·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	1393	1573	1674	1471

64(112)

(i) 528 Kg/ha. (ii) 168·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	504	588	593	428

Crop :- Groundnut (*Summer*). **Ref :- T.N. 61(60), 62(85), 62(87), 64(111).**

Site :- Reg. Res. Stn., Tindivanam. Type :- 'C'.

Object :—To determine the optimum spacing required for bunch variety of Groundnut under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of F.Y.M. (ii) Clay loam for 62(85) ; Red sandy loam for others. (iii) 25.2.61 ; 18.3.62 ; 3.12.62 ; 5.2.64. (iv) (a) 4 ploughings with Mould Board plough for 62(87) and with Cooper plough for others. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) As per treatments. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV-2 (early). (vii) Irrigated. (viii) 2 hoeings+2 weedings. (ix) 10 cm. ; 19 cm. ; 13 cm. ; 1 cm. (x) 14.6.61 ; 26.6.62 ; 19.4.63 ; 19.5.64.

2. TREATMENTS :

4 spacings : S_1=23 cm.×15 cm. (control), S_2=30 cm.×10 cm., S_3=38 cm.×8 cm. and S_4=46 cm.×8 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 24·4 m.×7·9 m. (iii) 4 for 62(85) ; 5 for 62(87) ; 6 for others. (iv) (a) 7·9 m.×6·1 m. (b) 7·3 m.×4·6 m. (v) 30 cm.×76 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Severe attack of wilt for 62(85) ; mild incidence of Surul for others which was controlled by spraying D.D.T. (ii)) Yield of pods. (iv) (a) 1961-1964. (b) No. (c) Nil. (v) N.A. (vi) The yield for 62(85) was very low due to attack of wilt and very severe summer conditions ; severe drought conditions prevailed for 64(111). (vii) Error variances are heterogeneous and Treatments×years interaction is absent.

5. RESULTS :

61(60)

(i) 2009 Kg/ha. (ii) 293·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	1947	2077	2001	2013

62(85)

(i) 227 Kg/ha. (ii) 19·4 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	255	198	220	234

C.D.=31·0 Kg/ha.

62(87)

(i) 1070 Kg/ha. (ii) 121·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	1055	1035	1133	1055

64(111)

(i) 808 Kg/ha. (ii) 195·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	863	850	914	604

Crop :- Groundnut (*Monsoon*). Ref :- T.N. 61(62), 62(89), 63(108), 64(128).

Site :- Reg. Res. Stn., Tindivanam. Type :- 'CMV'.

Object :—To determine the suitable combinations of varieties, spacings and manures for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) Nil. (ii) Red sandy loam. (iii) 30.7.61 ; 28.8.62 ; 20.7.63 ; 18.8.64. (iv) (a) 4 ploughings. (b) Dibbling. (c) 112 Kg/ha. (d) As per treatments. (e) 1. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings and hoeings. (ix) 57 cm. ; 73 cm. ; 84 cm. ; 73 cm. (x) 3.11.61 ; 1.12.62 ; 2.11.63 ; 25.11.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V_1=TMV—2, and V_2=A.H-3490.
(2) 2 spacings : S_1=15·2 cm.×15·2 cm. and S_2=30·5 cm.×7·6 cm.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of F.Y.M. : F_0=0 and F_1=62·5 Q/ha.
(2) 3 levels of manuring : M_0=No manuring, M_1=Low manuring and M_2=Medium manuring.

Low manuring=N at 5·6 Kg/ha.+P_2O_5 at 11·2 Kg/ha.+K_2O at 16·8 Kg/ha.

Medium manuring=N at 11·2 Kg/ha.+P_2O_5 at 22·4 Kg/ha.+K_2O at 33·6 Kg/ha.

N was applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.
N, P and K broadcasted 3 to 4 days before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main plots/replication, 6 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 20·1 m.×1·2 m. (b) 18·3 m.×0·6 m. (v) 2 rows on each side. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild incidence of Surul controlled by D.D.T. spray. (iii) Yield of pods. (iv) (a) 1961 to 1964. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As sub-plot error variances are heterogeneous, results of individual years are presented below.

5. RESULTS :

61(62)

(i) 1495 Kg/ha. (ii) (a) 312 Kg/ha. (b) 147 Kg/ha. (iii) Main effect of M and interaction V×M are highly significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	1341	1517	1595	1511	1458	1488	1481	1484
F_1	1442	1513	1563	1546	1467	1519	1493	1506
Mean	1392	1515	1579	1529	1462	1504	1487	1495
S_1	1415	1539	1557	1565	1442			
S_2	1368	1491	1602	1492	1482			
V_1	1344	1604	1638					
V_2	1440	1425	1521					

C.D. for for M marginal means =65·8 Kg/ha.

C.D. for M means at the same level of V=92·9 Kg/ha.

C.D. for V means at the same level of M =145·7 Kg/ha.

62(89)

(i) 280 Kg/ha. (ii) (a) 103 Kg/ha. (b) 57 Kg/ha. (iii) Main effects of V and M are highly significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	249	291	288	202	351	289	264	276
F	263	303	285	220	347	281	286	284
Mean	256	297	287	211	349	285	275	280
S_1	252	307	295	206	363			
S_2	260	287	279	215	335			
V_1	177	245	210					
V_2	355	348	364					

C.D. for V marginal means=40·9 Kg/ha.

C.D. for M marginal means=26·1 Kg/ha.

63(108)

(i) 1298 Kg/ha. (ii) (a) 276 Kg/ha. (b) 137 Kg/ha. (iii) Main effect of M is highly significant and main effect of S and interactions $V \times M$ and $S \times F$ are significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	1239	1424	1303	1352	1292	1363	1281	1322
F_1	1157	1352	1311	1265	1282	1379	1168	1273
Mean	1198	1388	1307	1309	1287	1371	1224	1298
S_1	1269	1453	1392	1379	1364			
S_2	1127	1323	1223	1239	1210			
V_1	1177	1381	1368					
V_2	1219	1396	1246					

C.D. for S marginal means =109·8 Kg/ha.
C.D. for M marginal means =61·1 Kg/ha.
C.D. for M means at the same level of V=86·5 Kg/ha.
C.D. for V means at the same level of M=130·5 Kg/ha.
C.D. for F means at the same level of S =70·7 Kg/ha.
C.D. for S means at the same level of F =120·4 Kg/ha.

64(128)

(i) 381 Kg/ha. (ii) (a) 193 Kg/ha. (b) 62 Kg/ha. (iii) Main effect of M is highly significant and main effect of F is significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	332	385	391	374	365	364	375	369
F_1	365	400	413	388	397	400	385	393
Mean	349	393	402	381	381	382	380	381
S_1	350	403	393	378	386			
S_2	347	382	411	384	376			
V_1	349	396	398					
V_2	348	389	406					

C.D. for F marginal means=22·5 Kg/ha.

C.D. for M marginal means=27·5 Kg/ha.

Crop :- Groundnut (*Monsoon*). **Ref :- T.N. 61(63), 62(90), 63(109), 64(129).**

Site :- Reg. Res. Stn., Tindivanam. Type :- 'CMV'.

Object :—To determine suitable combinations of varieties, spacings and manuring for Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) N.A. (ii) Red sandy loam. (iii) 27.7.61 ; 29.8.62 ; 26.7.63 ; 20.8.64. (iv) (a) 4 ploughings. (b) Dibbling. (c) 135 Kg/ha. (d) As per treatments. (e) 1. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Two hoeings and weeding. (ix) 62 cm.; 78 cm. ; 106 cm. ; and 72 cm. (x) 14.12.61 ; 9.1.63 ; 20.12.63 ; 31.12.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V_1=TMV-3 and V_2=Local manritius.

(2) 2 spacings : S_1=22·9 cm.×20·3 cm. and S_2=45·7 cm.×10·2 cm.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of F.Y.M. : F_0=0, F_1=62·5 Q/ha.

(2) 3 levels of Manuring : M_0=No manuring, M_1=5·6 Kg/ha. of N as A/S+11·2 Kg/ha. of P_2O_5 as Super+16·8 Kg/ha. of K_2O as Mur. Pot. and M_2=11·2 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot.

Manures broadcasted 3 to 4 days before sowing.

3. DESGIN :

(i) Split-plot. (ii) (a) 4 main-plots/replication, 6 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 20·1 m.× 1·2 m. (b) 18·3 m.×0·6 m. (v) 2 rows on each side. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Mild incidence of Surul controlled by D.D.T. spray. (iii) Yield of pods. (iv) (a) 1961-1964. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As sub-plot error variances are heterogeneous, results of individual years are presented below.

5. RESULTS :

61(63)

(i) 1075 Kg/ha. (ii) (a) 315 Kg/ha. (b) 197 Kg/ha. (iii) Main effect of V is highly significant. Main effect of M and interaction V×M are significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	1102	1058	961	1189	891	1027	1054	1040
F_1	1177	1057	1094	1230	988	1109	1110	1109
Mean	1140	1058	1027	1209	940	1088	1082	1075
S_1	1100	1062	1041	1199	936			
S_2	1180	1053	1013	1220	944			
V_1	1323	1221	1084					
V_2	956	894	970					

C.D. for V marginal means =125·3 Kg/ha.
C.D. for M marginal means =88·1 Kg/ha.
C.D. for M means at the same level of V=124·6 Kg/ha.
C.D. for V means at the same level of M =161·2 Kg/ha.

62(90)

(i) 229 Kg/ha. (ii) (a) 79·0 Kg/ha. (b) 60·2 Kg/ha. (iii) Main effect of M and interaction M×V×F are significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	220	226	265	229	244	240	234	237
F_1	212	214	235	212	229	215	225	220
Mean	216	220	250	221	236	228	229	229
S_1	219	210	254	211	244			
S_2	212	230	246	230	229			
V_1	211	203	248					
V_2	220	237	252					

C.D. for M marginal means=27·0 Kg/ha.

63(109)

(i) 540 Kg/ha. (ii) (a) 178·6 Kg/ha. (b) 93·9 Kg/ha. (iii) Main effect of V is highly significant and main effect of S, interactions S×F and V×S×M×F are significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	512	553	535	586	481	514	553	533
F_1	570	560	513	611	484	483	612	548
Mean	541	556	524	599	482	499	582	540
S_1	496	514	487	568	430			
S_2	586	598	562	629	535			
V_1	603	627	566					
V_2	479	485	483					

C.D. for V or S marginal means =71·0 Kg/ha.

C.D. for F means at the same level of S=48·3 Kg/ha.

C.D. for S means at the same level of F=78·7 Kg/ha.

64(129)

(i) 192 Kg/ha. (ii) (a) 115·1 Kg/ha. (b) 49·7 Kg/ha, (iii) Main effects of M and F are highly significant and interaction M×F×V×S is significant. (iv) Av. yield of pods in Kg/ha.

	M_0	M_1	M_2	V_1	V_2	S_1	S_2	Mean
F_0	140	171	205	181	164	162	182	172
F_1	198	222	217	224	200	214	210	212
Mean	169	197	211	202	182	188	196	192
S_0	167	200	197	217	159			
S_1	171	193	225	188	205			
V_0	180	201	226					
V_1	157	192	196					

C.D. for M marginal means=22·2 Kg/ha.

C.D. for F marginal means=18·2 Kg/ha.

Crop :- Groundnut (*Summer*). **Ref :- T.N. 63(111), 64(117).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'I'.**

Object :— To study the effect of different intervals of irrigation on Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of F.Y.M. (ii) Red sandy loam. (iii) 5.2.63 ; 6.2.64. (iv) (a) 3 to 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 23 cm.×15 cm. (e) 1. (v) 125 Q/ha. o F.Y.M. (vi) TMV-2 (early). (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) 11 cm. ; 1 cm. (x) 21.5.63 ; 19.5.64.

2. TREATMENTS :

4 intervals of irrigation : I_1=7, I_2=10, I_3=12 and I_4=15 days.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 5·5 m.×15·8 m. for 63 ; 6·4 m.×23·2 m. for 64. (iii) 6 for 63 ; 7 for 64. (iv) (a) 5·5 m.×4·0 m. for 63 and 6·4 m.×5·8 m. for 64. (b) 4·6 m.×3·4 m. for 63 and 5·8 m.×4·9 m. for 64 (v) 30 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Folidol sprayed twice against "Surul" (iii) Yield of pods. (iv) (a) 1963-64. (b) No. (c) Presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments× years interaction is absent.

5. RESULTS :

(i) 1760 Kg/ha. (ii) 280·0 Kg/ha. (based on 36 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	I_1	I_2	I_3	I_4
Av. yield	1721	1953	1850	1515

C.D.=222·9 Kg/ha.

Years	I_1	I_2	I_3	I_4	Sig.	G.M.	S.E./plot
1963	1540	1926	1927	1603	*	1749	241·7
1964	1877	1977	1785	1441	*	1770	281·3
Pooled	1721	1953	1850	1515	**	1760	280 0

Crop :- Groundnut (*Summer*). **Ref :- T.N. 65(3).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'IM'.**

Object :—To determine the effect of manures and irrigation on the incidence of virus in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) N.A. (ii) Red soil. (iii) 9.1.65. (iv) (a) Ploughing with Victory plough and levelling. (b) Line sowing. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) N.A. (vi) TMV-2 (vii) Irrigated. (viii) Weeding once in 20 days up to two months. (ix) N.A. (x) 7.5.1965.

2. TREATMENTS :

All combinations of (1), (2), (3), (4) and (5)
(1) 2 levels of F.Y.M. : M_0=0 and M_1=124 Q/ha.
(2) 2 levels of N : N=0 and N_1=11·2 Kg/ha.
(3) 2 levels of P_2O_5 : P_0=0 and P_1=33·6 Kg/ha.
(4) 2 levels of K_2O : K_0=0 and K_1=56 Kg/ha.
(5) 2 levels of irrigation : I_0=Irrigation once in 15 days and I_1=Irrigation once in 10 days.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) 2^5 confd. (ii) (a) 8 plots/block and 4 blocks/replication. (b) N.A. (iii) 5. (iv) (a) 2·7 m.×2·7 m. (b) 1·8 m.×1·8 m. (v) Three rows on either side. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Incidence of virus. No control measures taken. (iii) Observation at 15 days interval on the incidence of virus and pod yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 1253 Kg/ha. (ii) 362·7 Kg/ha. (iii) Main effects of M, N, K and I and interaction M×P are significant. (iv) Mean and differential response of pods in Kg/ha.

	Mean effect	M		N		P		K		I	
		—	+	—	+	—	+	—	+	—	+
M	91	—	—	79	103	10	172	101	81	92	99
N	53	41	66	—	—	125	—19	—5	111	108	- 2
P	49	– 31	129	121	—23	—	—	10	88	72	26
K	113	123	103	55	171	73	153	—	—	102	124
I	—88	—86	—90	—32	—144	– 65	—111	—99	—77	—	—

C.D. for mean response =50·4 Kg/ha.
C.D. for differential response=159·0 Kg/ha.

Crop :- Groundnut (*Main*). **Ref :- T.N. 62(172).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :— To test the efficacy of different spray fungicides in the control of Tikka leaf-spot of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Groundnut-Groundnut. (b) Groundnut. (c) 50 Q/ha. of F.Y.M. (ii) Red loam. (iii) 23.8.62. (iv) (a) 2 ploughings. (b) Line sowing. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 50 Q/ha. of F.Y.M. (vi) TMV-3. (vii) Unirrigated. (viii) 2 weedings and earthing up. (ix) 38 cm. (x) 6.12.62.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control, T_1=Fytolan 0·37% 67 gm/10 litres of water, T_2=Shell Copper 0·3% 64 gm/10 litres of water, T_3=Copper Sandoz 0·3% 55 gm/10 litres of water, T_4= Fungimar 0·35% 64 gm/10 litres of water, T_5=Cupramar 0·35% 64 gm/10 litres of water, T_6=Vitigram 0·4% 70 gm/10 litres of water, and T_7=Bordeaux Mixture 0·80 gm (140 gm of lime and 140 gm of Cu. Sul.)/10 litres of water.

3 sprays @ 925 litres of spraying fluid per ha. starting a few days (2 weeks) before the possible outbreak of the disease.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Leaf spot infection and yield of pods. (iv) (a) No. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of pods.

(i) 2605 Kg/ha. (ii) 344·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	2498	2498	2579	2569	2767	2460	2500	2971

Leaf spot infection (percentage).

(i) 37·2%. (ii) 3·83%. (iii) Treatment differences are not significant. (iv) Mean percentage of infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean %	39·0	38·0	37·5	35·5	40·0	36·5	36·0	34·8

Crop :- Groundnut (*Main*). **Ref :- T.N. 63(229).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :— To test the efficacy of different spray fungicides in the control of Tikka leaf spot of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 50 Q/ha. of F.Y.M. (ii) Red loam. (iii) 16.8.63. (iv) (a) 2 ploughings. (b) Line sowing. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 50 Q/ha. of F.Y.M. (vi) TMV-3. (vii) Unirrigated. (viii) 2 weedings. (ix) 25 cm. (x) 3.12.63.

2. TREATMENTS :

7 fungicidal treatments : T_0=Control, T_1=Fytolan 0·37% 67 gm./18 litres of water, T_2=Copper Sandoz 0·3% 55 gm./18 litres of water, T_3=Shell Copper 0·35% 64 gm./18 litres of water T_4=Cupramar 0·35% 64 gm./18 litres of water, T_5=Fungimar 0·35% 64 gm./18 litres of water and T_6=Bordeaux Mixture 0·80% 140 gm/18 litres of water.

3 sprayings were given on 3.9.63, 23.9.63 and 14.10.63 @ 928 litres of spraying fluid/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infection count and yield of pods. (iv) (a) No. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of pods

(i) 2455 Kg/ha. (ii) 283·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2141	2624	2702	2500	2298	2377	2545

Infection count.

(i) 27·7. (ii) 2·27. (iii) Treatment differences are highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean	33·0	24·0	25·0	26·0	29·0	31·0	26·0

C.D.=3·4

Crop :- Groundnut (*Main*). **Ref :- T.N. 64(227).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'D'.**

Object :—To test the efficacy of different spray fungicides in the control of Tikka leaf spot of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 50 Q/ha. of F.Y.M. (ii) Red loam. (iii) 13.8.64. (iv) (a) 2 ploughings. (b) Line sowing. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 50 Q/ha. of F.Y.M. (vi) TMV—2. (vii) Unirrigated. (viii) 2 weedings. (ix) 49 cm. (x) 27.11.64.

2. TREATMENTS :

6 fungicidal treatments : T_0=Control, T_1=Fytolan 0·37% at 67 gm./10 litres, T_2=Shell Copper 0·35% at 64 gm./10 litres, T_3=Cupramar 0·35% at 64 gm./10 litres, T_4=Fungimar 0·35% at 46 gm./10 litres and T_5=Bordeaux Mixture 0·80% at 140 gm. each of lime and Cu. Sul./10 litres.

4 sprayings were given at 925 litres of spraying fluid/ha. on 26/8, 14/9, 7/10 and 30.10.1964.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infection count and yield of pods. (iv) (a) No. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of pods.

(i) 2461 Kg/ha. (ii) 258·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	2046	2858	2662	2326	2214	2662

C.D. =390·2 Kg/ha.

Infection count

(i) 30·8. (ii) 2·8. (iii) Treatment differences are highly significant. (iv) Mean infection count.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	40·5	26·3	28·0	31·5	30·5	27·8

C.D.=4·3

Crop :- Groundnut (*Main*). **Ref :- T.N. 65(36).**

Site :- Ryot's holdings at Sembagaputtur, Coimbatore. Type :- 'D'.

Object :—To test the efficacy of different spray fungicides in the control of Tikka leaf spot of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Groundnut-Groundnut. (b) Groundnut. (c) 50 Q/ha. of F.Y.M. (ii) Red loam. (iii) 11.8.65. (iv) (a) 2 ploughings. (b) to (e) N.A. (v) 50 Q/ha. of F.Y.M. (vi) Local bunch. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 30.11.65.

2. TREATMENTS :

6 fungicides : T_0=Control, T_1=Fytolan 0·37% at 67 gm/10 litres, T_2=Shell Copper 0·30% at 64 gm/10 litres. T_3= Cupramar 0·35%, at 64 gm/10 litres, T_4=Fungimar 0·35%, at 64 gm/10 litres and T_5= Bordeaux Mixture at 0·80% (140 gm. of lime+140 gm. of Cu.Sul./10 litres).

3 sprayings were given on 28.8.65, 17.9.65 and 10.10.65, starting a few days before the possible outbreak of disease.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 7·9 m.×5·5 m. (b) 6·1 m.×3·7 m. (v) 91 cm.×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Disease incidence and yield of pods. (iv) (a) No. (b) No (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of pods.

(i) 2186 Kg/ha. (b) 182·1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean	1906	2354	2242	2130	2018	2466

C.D.=274·3 Kg/ha.

Index of disease (leaf spot)

(i) 29·7. (ii) 2·02. (iii) Treatments differences are highly significant. (iv) Av. disease index.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean Index	38·0	25·5	26·0	29·0	31·0	28·5

C.D.=3·04

Crop :- Groundnut (*Main*). **Ref :- T.N. 64(135).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the efficacy of different seed treatments for the control of root-rot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 19.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm. × 15 cm. (e) 1. (v) 188 Q/ha. of compost. (vi) TMV – 2. (vii) Unirrigated. (viii) Hoeing and weeding done twice. (ix) 67 cm. (x) 3 12.64.

2. TREATMENTS :

7 fungicides : T_0=Control (untreated), T_1=Agrosan G.N. 0·25%, T_2=Ceresan dry 0·25%, T_3=Thiram 0·25%, T_4=Brassicol 0·25%, T_5=Flit 406 –0·375% and T_6=Dithane Z-78—0·375%.

Seed treatments T_1 to T_4 applied at 2·5 gm/1000 gm. of seeds and T_5 and T_6 applied at 3·8 gm/1000 gm. of seeds. Seeds were treated with the respective fungicides in small tins one day prior to sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 40·5 m. × 5·8 m. (iii) 4. (iv) (a) 5·8 m. × 5·8 m. (b) 4·0 m. × 4·0 m. (v) 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of root-rot. Other diseases and pests negligible. (iii) Germination count, infection data and yield of pods. (iv) (a) 1964—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 471 Kg/ha. (ii) 43·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	435	504	472	446	506	458	477

Crop :- Groundnut (*Summer*). **Ref :- T.N. 63(129).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the efficacy of different fungicides for the control of root-rot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 7.3.63. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm. × 15 cm. (e) 1. (v) 188 Q/ha. of C.M. (vi) TMV—2. (vii) Irrigated. (viii) 2 hoeings and 2 weedings. (ix) 28 cm. (x) 2.7.73.

2. TREATMENTS :

10 fungicides : T_0=Control (untreated), T_1=Agrosan G.N., T_2=Ceresan dry, T_3=Fernesan, T_4=Wet Ceresan 0·1%, T_5=Bordeaux mixture 1%, T_6=Cheshunt compound 0·3%, T_7=Ceresan dry +Bordeaux mixture, T_8=Ceresan dry+Wet Ceresan and T_9=Ceresan dry+Cheshnut compound.

T_1 to T_3 applied to seed at 0·28%, T_4 to T_6 applied as soil drench and T_7 to T_9 as seed treatment-cum-soil drench.

Seeds treated with the respective fungicides in small tins one day prior to sowing. Soil drench applied $1\frac{1}{2}$ months after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 6·7 m. × 67·1 m. (iii) 2. (iv) (a) 6·7 m. × 6·7 m. (b) 4·9 m. × 4·9 m. (v) 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of roo —rot Other diseases and pests negligible. (iii) Germination counts, infection data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 1063 Kg/ha. (ii) 137·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1179	844	1091	994	808	1087	1351	1034	1101	1139

Crop :- Groundnut (*Main*). **Ref :- T.N. 62(111).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the efficacy of different insecticides in controlling Surul poochi in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gingelly. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 30.8.62. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm. × 15 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings and weedings. (ix) 71 cm. (x) 10.12.62.

2. TREATMENTS:

7 insecticides : T_0=Control (untreated). T_1=D.D.T. 5% dust, T_2=B.H.C. 10% dust, T_3=D.D.T. 0·1% spray, T_4=B.H.C. 0·05% spray, T_5=Endrin 0·02% spray and T_6=Parathion 0·025% spray.

Dusting as well as spraying were all given in one round only when the crop was 33 days old as further Infestation did not occur.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 22·7 m. × 8·5 m. (iii) 4. (iv) (a) and (b) 4·0 m. × 8·5 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of surul poochi. Other pests and diseases negligible. (iii) Infestation data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 172 Kg/ha. (ii) 31·1 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	137	160	171	157	172	242	163

C.D. =46·2 Kg/ha.

Crop :- Groundnut (*Main*).
Site :- Reg. Res. Stn., Tindivanam.
Ref :- T.N. 63(138).
Type :- 'D'.

Object :—To study the efficacy of different insecticides in controlling Surul Poochi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gingelly. (iii) 125 Q/ha. of F.Y.M. (ii) Red sandy loam. (iii) 23.7.63. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 125 Q/ha. of compost. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 75 cm. (x) 7.11.63.

2. TREATMENTS :

9 insecticides : T_0=Control (untreated), T_1=D.D.T. 5% dust, T_2=B.H.C. 10% dust, T_3=Dieldrin 1·5% dust, T_4=Aldrin 2·0% dust, T_5=D.D.T. 0·1% spray, T_6=B.H.C. 0·05% spray, T_7=Endrin 0·02% spray and T_8=Parathion 0·025% spray.

Three rounds of treatments were given at tri-weekly intervals, giving the first round when the crop was one month old.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 43·9 m.×8·2 m. (iii) 4. (iv) (a) 4·9 m.×8·2 m. (b) 4·3 m.×7·6 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of surul poochi. Other pests and diseases negligible. (iii) Infestation data and yield of pods. (iv) (a) 1963—64. (b) No. (c) Nil. (v) Nil. (vi) The rain was very heavy during the flower production stage, totalling 46·7 cm. (vii) Nil.

5. RESULTS :

(i) 855 Kg/ha. (ii) 161·8 Kg/ha. (iii) Control *vs.* others is highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	538	769	876	946	930	815	938	946	938

C.D. for control *vs.* others=177·1 Kg/ha.

Crop :- Groundnut (*Main*).
Site :- Reg. Res. Stn., Tindivanam.
Ref :- T.N. 64(145).
Type :- 'D'.

Object :—To study the efficacy of different insecticides in controlling Surul Poochi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 19.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 62·5 Q/ha. of compost. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 72 cm. (x) 1 and 2.12.64.

2, TREATMENTS :

6 insecticides : T_0=Control (untreated), T_1=Imidan 2% dust, T_2=Sevin 10% dust, T_3=Endrin 0·02% spray, T_4=Parathion 0·025% spray, T_5=Trithion 0·06% spray, T_6=Methyl demeton 0·1% spray and T_7=Dipterex 0·1% spray.

The first round of treatments was given when the crop was 38 days old and a second round was given after 3 weeks.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 8·8 m.×51·2 m. (iii) 4. (iv) (a) 8·8 m.×6·4 m. (b) 7·6 m.×5·2 m. (v) 3 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of surul poochi. Other pests and diseases negligible. (iii) Pest infestation data and pod yield. (iv) (a) 1964 only. (b) —. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 258 Kg/ha. (ii) 84·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	209	234	271	294	269	279	249	260

Crop :- Groundnut (*Summer*). **Ref :- T.N. 64(144).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the efficacy of different insecticides in controlling Surul Poochi.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 11.2.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm.×23 cm. (e) 1. (v) 125 Q/ha. of compost. (vi) TMV—2 (early). (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) 1 cm. (x) 25.5.64.

2. TREATMENTS :

Same as in expt. No. 63(138) on page 574.

The first round of treatments was given when the crop was 50 days old and a second round was given after 3 weeks.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 5·8 m.×38·4 m. (iii) 4. (iv) (a) 5·8 m.×4·3 m. (b) 4·9 m.×3·7 m. (v) 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of surul poochi. Other pests and diseases negligible. (iii) Pest infestation data and yield of pods. (iv) (a) 1964 only. (b) —. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1899 Kg/ha. (ii) 94·5 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	1253	1565	1736	2248	1812	1921	2085	2359	2116

C.D. =138·9 Kg/ha.

Crop :- Groundnut (*Main*). **Ref :- T.N. 62(104).**

Site :- Agri. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To find out the comparative efficacy of different fungicides in controlling Tikka leaf spot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 28.8.62. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 188 Q/ha. of C.M. (vi) TMV—2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 75 cm. (x) 8.12.62.

2. TREATMENTS :

9 fungicides : T_0=Control (untreated), T_1=Bordeaux mixture 0·75% spray, T_2=Sulphur dust @ 22·4 Kg/ha. T_3=Fytolan 0·25% spray, T_4=Fungimar 0·25% spray, T_5=Dithane Z—78 0·15% spray, T_6=Flit-406 0·2% spray, T_7=Ceresan lime dust @ 22·4 Kg/ha. and T_8= Water spray.

The fungicides were applied 3 times at fortnightly intervals, the first one given about fifty days after sowing, The sprays were with rocker type sprayer and the dusts with hand duster.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 10·1 m.×35·6 m. (iii) 4. (iv) (a) and (b) 10·1 m.×4·0 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of Tikka. Other diseases and pests negligible. (iii) Infection data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 241 Kg/ha. (ii) 70·1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	185	269	439	215	181	174	266	244	194

C.D.=103·1 Kg/ha.

Crop :- Groundnut (*Main*). **Ref :- T.N. 63(128).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the comparative efficacy of different fungicides in controlling Tikka leaf spot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of compost. (ii) (a) Red sandy loam. (b) N.A. (iii) 21.7.63. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm×15 cm. (e) 1. (v) 62 Q/ha. of C.M. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 85 cm. (x) 6.11.63.

2. TREATMENTS :

10 fungicides : T_0=Control (water spray), T_1=Bordeaux mixture 0·75% spray, T_2=Brestan 0·1% spray, T_3=Dithane M-22 0·15% spray, T_4=Flit 406—0·2% spray, T_5=Fungimar 0·25% spray, T_6=Fytolan 0·25 spray, T_7=Lonacol 0·1% spray, T_8=Sulphur dust at 22·4 Kg/ha. and T_9=Ceresan lime dust at 22·4 Kg/ha.

All fungicides were applied three times 38, 53 and 78 days after sowing. Sprays were applied with rocker type sprayer and the dusts with hand duster (Tony duster).

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 10·4 m.×61·0 m. (iii) 4. (iv) (a) 10·4 m.×6·1 m. (b) 8·5 m.×4·3 m. (v) Three rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of *tikka*. Other diseases and pests negligible. (iii) Infection data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 1370 Kg/ha. (ii) 223·2 Kg/ha. (iii) Control *vs.* others are significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1133	1503	1510	1249	1229	1263	1394	1284	1565	1572

C.D. for control *vs.* others=241·4 Kg/ha.

Crop :- Groundnut. **Ref :- T.N. 62(105).**
Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To find out the efficacy of different insecticides for the control of root-rot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of G.M. (ii) (a) Red sandy loam. (b) N.A. (iii) 28.8.62. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling by wooden pegs. (c) 112 Kg/ha. (d) 15 cm.×15 cm. (e) 1. (v) 188 Q/ha. of compost. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 75 cm. (x) 7.12.62.

2. TREATMENTS :

10 fungicides : T_0=Control (untreated), T_1=Agrosan 0·28% seed treatment, T_2=Dry ceresan 0·28% seed treatment, T_3=Wet ceresan 0·1% seed treatment, T_4=Lime at 1120 Kg/ha. soil application, T_5=Wet ceresan 0·1% at 2250 litres/ha. soil drench, T_6=Bordeaux mixture 1% at 2250 litres/ha. soil drench, T_7=Dry ceresan 0·28% seed treatment+Lime at 1120 Kg/ha. soil, application, T_8=Dry ceresan 0·28% seed treatment+Wet ceresan 0·1 at 2250 litres/ha. soil drench. and T_9=Dry ceresan 0·28% seed treatment+Bordeaux mixture 1% at 2250 litres/ha. soil drench.

The seeds were treated with fungicides two days prior to sowing in small tins. Lime was applied in the soil ten days prior to sowing and soil drench 1½ months after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 10·4 m.×30·5 m. (iii) 4. (iv) 10·4 m.×3·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Slight incidence of root—rot. Other diseases and pests negligible. (iii) Germination counts, infection data and grain yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 168 Kg/ha. (ii) 39·5 Kg/ha. (iii) Treatment differences other than control are highly significant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	158	196	146	101	194	148	168	177	158	234

C.D. for treatment means=57·5 Kg/ha.

Crop :- Groundnut. **Ref :- T.N. 63(133).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To find out the efficacy of different insecticides for the control of root—rot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red sandy loam. (b) N.A. (iii) 24.7.63. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm. × 15 cm. (e) 1. (v) 62·5 Q/ha. of C.M. (vi) TMV-2(early). (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 76 cm. (x) 9.11.63.

2. TREATMENTS :

12 fungicides : T_0=Control (water drench), T_1=Agrosan, T_2=Ceresan dry, T_3=Fernesan, T_4=Thiram, T_5=Bordeaux mixture 1% T_6=Cheshnut compound 0·3%, T_7=Wet ceresan 0·1%, T_8=Vapam 1%, T_9=Crude oil emulsion 1%, T_{10}=Dry ceresan+Bordeaux mixture and T_{11}=Dry ceresan+Cheshnut compound.

Treatments T_1 to T_4 applied to seeds at 0·25% or 2·5 gm. for treating 1000 gm. of seed, treatments T_5 to T_9 applied as soil drench at 2250 litres/ha. and T_{10} and T_{11} applied as seed treatment-cum-soil drench.
Seeds treated with the respective fungicides in small tins 2 days prior to sowing. Soil drench was applied 1½ months after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) 10·4 m. × 65·9 m. (iii) 4. (iv) (a) 10·4 m. × 5·5 m. (b) 8·5 m. × 3·7 m. (v) Three rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of root—rot. Other diseases and pests negligible. (iii) Germination counts, infection data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 970 Kg/ha. (ii) 201·2 Kg/ha. (iii) Treatment differences are not siginificant. (iv) Av. yield of pods in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1073	953	809	1089	945	1241
	T_6	T_7	T_8	T_9	T_{10}	T_{11}
	881	865	945	993	1041	809

Crop :- Groundnut. **Ref :- T.N. 64(134).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'DV'.**

Object :—To study the comparative efficacy of different fungicides in controlling *Tikka* leaf spot disease in Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 27.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 112 Kg/ha. (d) 15 cm. × 15 cm. for V_1 and 23 cm. × 23 cm. for V_2. (e) 1. (v) 188 Q/ha. of G.M. (vi) As per treatments. (vii) Unirrigated. (viii) 2 hoeings and 2 weedings. (ix) 65 cm. (x) V_1 on 9.12.64 and V_2 on 29.12.64.

2. TREATMENTS :

Main-plot treatments :

6 fungicidal treatments : F_0=Control (water spray), F_1=Bordeaux mixture 0·75% spray, F_2=Sulphur dust at 22·4 Kg/ha. dust, F_3=Ceresan lime mixture dust at 22·4 Kg/ha. dust, and F_4=Brestan. 0·1% spray and F_5=Dithane M-22—0.15% spray.

Sub-plot treatments :

2 varieties : V_1=TMV-2 and V_2=TMV-3.

All fungicides were applied 4 times for TMV-3 and 3 times for TMV-2. The first round was given 30 days after sowing and the rest at about 20 days interval. The sprays were done with Rocker type sprayer and dusts with hand dust (Tony duster).

3 DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 7·6 m. × 6·1 m. (b) 5·8 m. × 4·3 m. (v) Three rows alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of *tikka*. Other pests and diseases negligible. (iii) Infection data and yield of pods. (iv) to (vii) Nil.

5. RESULTS :

(i) 546 Kg/ha., (ii) (a) 113·9 Kg/ha. (b) 73·5 Kg/ha. (iii) "F_0 vs. fungicides" and fungicidal treatment differences are significant. Main effect of V is highly significant. (iv) Av. yield of pods in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
V_1	452	627	692	520	756	544	599
V_2	427	506	527	430	604	464	493
Mean	440	567	610	475	680	504	546

C.D. for 'F_0 vs. fungicides'=132·9 Kg/ha.
C.D. for F marginal means=121·5 Kg/ha.
C.D. for V marginal means=44·5 Kg/ha.

Crop :- Gingelly (*Monsoon*). **Ref :- T.N. 61(67), 62(95).**
Site :- Gingelly Res. Stn., Karur. **Type :- 'M'.**

Object :— To find out the response of Gingely crop to the application of C/A/N, A/S, Super and Mur. Pot.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gingelly. (c) 125 Q/ha. of C.M. for 61 (67) ; 100 Q/ha. of C.M. for 62(95). (ii) Red loam stream with pebbles. (iii) 4.9.61; 26.8.62. (iv) (a) 1 ploughing with country plough for 61(67) ; 3 ploughings with country plough+1 digging with spade for 62 (95). (b) Sowing in lines. (c) 6 Kg/ha. (d) 30 cm. × 30 cm. (e) —. (v) 100 Q/ha. of C.M. (vi) TMV-3 (early). (vii) Unirrigated. (viii) 1 hand hoeing+1 weeding for 61(67) ; 2 hand hoeings+2 weedings+1 thinning for 62 (95). (ix) 10 cm.; 45 cm. (x) 22.11.61; 20.11.62.

2. TREATMENTS :

9 manurial treatments : M_0=Control (no manure), M_1=22·4 Kg/ha. of N as C/A/N, M_2=22·4 Kg/ha. of N as A/S, M_3=22·4 Kg/ha. of P_2O_5 as Super, M_4=33·6 Kg/ha. of K_2O as Mur. Pot., $M_5=M_1+M_3$, $M_6=M_2+M_3$, $M_7=M_1+M_3+M_4$ and $M_8=M_2+M_3+M_4$.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) 16·8 m.×3·4 m. for 61 (67) ; 13·7 m.×2·4 m. for 62 (95). (b) 11·9 m.×2·7 m. for 61 (67) ; 10·1 m.×1·2 m. for 62 (95). (v) 244 cm.×30 cm. for 61 (67) ; 183 cm.×61 cm. for 62 (95). (vi) Yes.

4. GENERAL :

(i) Normal for 62 (67) ; Unsatisfactory for 62 (95). (ii) No incidence for 61 (67) ; Incidence of alternaria leaf spot disease for 62 (95). (iii) Yield of seeds. (iv) (a) 1961-62. (b) No. (c) Results of combined analysis given under 5. Results (v) (a) N.A. (b) Nil. (vi) Due to continuous heavy rains, the duration of cropwas slightly prolonged for 62(95). (vii) Error variances are homogeneous, Treatments×years interaction is absent.

5. RESULTS :

(i) 128 Kg/ha. (ii) 48·8 Kg/ha. (based on 24 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not signficant. (iv) Av. yield of seeds in Kg/ha.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
Av. yield	110	132	166	94	74	160	146	128	144

Years	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	Sig.	G.M.	S.E./plot
1961	162	186	219	114	109	221	196	174	183	N.S.	174	58·4
1962	57	77	114	73	40	99	97	83	105	N.S.	83	55·9
Pooled	110	132	166	94	74	160	146	128	144	N.S.	128	48·8

— — — —

Crop :- Gingelly (*Summer*). **Ref :- T.N. 60(11).**

Site :- Agri. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :— To determine the feasibility of manuriug with inorganic manures singly and in combinations over a basal dressing of C.M. on irrigated Gingelly.

1. BASAL CONDITIONS :

(i) (a) Gingelly-Paddy-*Cholam*. (b) Fodder-*Cholam*. (c) 75·3 Q/ha. of F.Y.M. (ii) Light clay. (iii) 19.3.60. (iv) (a) Ploughing with Cooper—11. twice and working junior hoe twice. (b) Dibbling. (c) 30 cm. between rows. (d) 11 Kg/ha. (e) 1. (v) 62·8 Q/ha. of F.Y.M. (vi) TMV-3 (early). (vii) Irrigated. (viii) The crop was thinned to a single seedling per hole and hand weeded and hoeing thrice. (ix) 2·5 cm. (x) 7.6.60.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 2 levels of N as A/S : N_0=0 and N_1=33·6 Kg/ha.
(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22·4 Kg/ha.
(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=22·4 Kg/ha.

3. DESIGN :

(i) 2^3 fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 5. (iv) (a) 6·6 m.×4·3 m. (b) 6·1 m.×3·7 m. (v) 30 cm. ×30 cm. (vi) Yes.

4. GENERAL :

(i) Growth fair. (ii) A severe attack of shoot-webber was controlled by dusting D.D.T. 5%. (iii) Flower counts and plant height—measurements were taken. (iv) (a) 1958 to 1960. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 302 Kg/ha. (ii) 37·9 Kg/ha. (iii) Only the main effect of N is highly significant. (iv) Av. yield of seeds in Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	276	267	265	278	272
N_1	323	341	321	343	332
Mean	300	304	293	311	302
K_0	293	293			
K_1	306	315			

C.D. for N marginal means=24·6 Kg/ha.

Crop :- Gingelly. **Ref :- T.N. 60(31).**

Site :- Agri. Res. Stn., Bhavanisagar. **Type :- 'C'.**

Object :— To find the optimum spacing for Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red gravelly loam. (b) N.A. (iii) 22.2.1960. (iv) (a) 2 to 3 ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) 24·7 C.L./ha. of compost. (vi) TMV-3 (early). (vii) Irrigated. (viii) 1 hoeing and weeding. (ix) 7 cm. (x) 13.5.60.

2. TREATMENTS :

5 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×23 cm., S_3=30 cm.×30 cm., S_4=46 cm.×46 cm. and S_5=55 cm.×55 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 4·6 m.×9·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of seeds. (iv) (a) 1955-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 278 Kg/ha. (ii) 93·4 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of seeds in Kg/ha.

Treatment	S_1	S_2	S_3	S_4	S_5
Av. yield	278	280	333	232	269

C.D.=112·4 Kg/ha.

Crop :- Gingelly (*Monsoon*). **Ref :- T.N. 63(121), 64(126).**

Site :- Gingelly Res. Stn., Karur. **Type :- 'CV'.**

Object :— To find out the optimum time of sowing for different varieties of Gingelly.

1. BASAL CONDITIONS :

(i) (a) Cereals-Oilseeds. (b) *Cholam* for 63 (121) ; Groundnut for 64 (126). (c) 125 cm. Q/ha. of C.M. (ii) Red loam. (iii) As per treatments (iv) (a) 4 ploughing. (b) Sowing in lines. (c) 6 Kg/ha. (d) 30 cm.×30 cm (e) —. (v) 125 Q/ha. of C.M. (vi) As per treatments. (vii) Unirrigated. (viii) 2 to 3 hand hoeings, weedings and thinnings. (ix) 55 cm.; 57 cm. (x) 28.10.63 to 4.1.64 ; 28.10.64 to 10.1.65.

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : D_1=25th July, D_2=10th August, D_3=25th August and D_4=10th September.

Sub-plot treatments :

2 varieties : V_1=Local gingelly (late) and V_2=TMV-3 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 8·2 m. ×1·2 m. (b) 6·7 m.×0·1 m. (v) 76 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of gall-fly, phyllody, wilt and alternaria leaf-spot for 63 (121) ; Incidence of gall-fly and phyllody for 64 (126). (iii) Yield of seeds. (iv) (a) 1962-64 (Expt. for 1962 failed). (b) No. (c) Results of combined analysis given under 5. Results. (v)(a) N.A.(b) Nil. (vi) Heavy rainfall of 10 cm. was recorded on 29.8.64 for 64 (126). V_2 variety was seriously affected by alternaria leaf spot disease. (vii) Error (a) and (b) both are homogeneous. Main-plot Treatments×years interaction is present while Sub-plot Treatments×years interaction is absent.

5. RESULTS :

(i) 131 Kg/ha. (ii) (a) 51·3 Kg/ha. (based on 3 d.f. made up of Treatments×years interaction). (b) 27·0 Kg/ha. (28 d.f. made up of pooled error and various components of Treatments×years interaction). (iii) Main effect of V and interaction D×V are highly significant. Main effect of D is significant. (iv) Av. yield of seeds in Kg/ha.

	D_1	D_2	D_3	D_4	Mean
V_1	142	278	130	48	105
V_2	134	148	120	46	112
Mean	138	213	125	47	131

C.D. for D marginal means=33·1 Kg/ha.
C.D. for V marginal means =13·9 Kg/ha.
C.D. for D means at the same level of V=46·0 Kg/ha.
C.D. for V means at the same level of D=41·6 Kg/ha.

Years	D_1	D_2	D_3	D_4	Sig.	V_1	V_2	Sig.	G.M.	S.E./plot	
										main-plot	Sub-plot
1963	77	168	78	18	**	100	70	*	85	21·7	28·3
1964	198	258	172	76	**	199	154	**	176	25·7	22·0
Pooled	137	213	125	47	*	149	112	**	130	51·3	27·0

Crop :- Gingelly (*Monsoon*). **Ref :- T.N. 62(96), 63(122).**
Site :- Gingelly Res. Stn., Karur. **Type :- 'D'.**

Object :—To find out the effective insecticide for the control of the pest gall-fly on Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gingelly. (c) 162·5 Q/ha. of C.M. for 62(96); 125 Q/ha. of C.M. for 63(122). (ii) Red loam. (iii) 30.8.62; 19.8.63. (iv) (a) 3 to 5 ploughings. (b) Broadcasting and covering by ploughing (c) 6 Kg/ha. (d) 30 cm.×30 cm. (e) Nil. (v) 125 Q/ha. of C.M. (vi) TMV—3 (early). (vii) Unirrigated. (viii) 2 hand hoeings+2 weedings+2 thinnings. (ix) 44 cm., 32 cm. (x) 20.11.62; 14.11.63.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=D.D.T 50%, T_2=Endrine 0·05%, T_3=Parathion 0·05%, T_4=Folidol 0·05% and T_5=B.H.C. 1%.

Treatments T_1 to T_4 were applied by spraying and T_5 as dusting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 27·4 m.×7·3 m. for 62(96); 11·0 m.×9·1 m. for 63(122). (iii) 2. (iv) (a) 7·3 m.×4·6 m. for 62(96); 9·1 m.×1·8 m. for 63(122). (b) 5·5 m.×3·4 m. for 62(96); 6·7 m.×1·2 m. for 63(122). (v) 91 cm.×61 cm. for 62(96); 122 cm.×30 cm for 63(122). (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of gall-fly. Control measures as per treatments. (iii) Yield of seeds. (iv) (a) 1962 – 64 (Expt conducted in 1964—failed). (b) No. (c) Results of combined analysis given under 5. Results. (v) (a) N.A. (b) Nil. (vi) Heavy rain (11·5 cm.) was received on the next day of sowing for 62(96). (vii) Error variances for yield are homogeneous and Treatments×years teraction is absent. For infection counts, variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Yield

(i) 244 Kg/ha (ii) 71·4 Kg/ha. (based on 15 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of seeds in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	184	232	244	274	251	282

Years	T_0	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1962	162	236	303	261	270	274	N.S.	251	93·8
1963	207	227	185	286	232	291	N.S.	238	55·0
Pooled	184	232	244	274	251	282	N.S.	244	71·4

Infestation count

(i) 17·8 degrees. (ii) 1·2 degrees (based on 5 d.f. made up of Treatments×years interaction. (iii) Treatment differences are highly significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	21·4	19·0	15·4	17·0	17·3	16·9

C.D.=3·0 degrees.

Years	T_0	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1962	22·3	20·6	15·6	17·4	17·6	18·3	**	18·6	0·4
1963	20·4	17·4	15·1	16·5	17·0	15·5	*	17·0	1·7
Pooled	21·4	19·0	15·4	17·0	17·3	16·9	**	17·8	1·2

Crop :- Gingelly (*Summer*). **Ref :- T.N. 64(132).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To study the comparative efficacy of various insecticides in controlling leaf and pod cater-pillar 'Antigastra catalunalis' in Gingelly.

1. BASAL CONDITIONS

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 17.3.64. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines with the help of hand hoe. (c) 5 Kg/ha. (d) 30 cm. × 30 cm. (e) 1. (v) 125 Q/ha. of Cattle manure. (vi) TMV–3. (vii) Irrigated. (viii) Thinning and weeding. (ix) 1·9 cm. (x) 6.6.64.

2. TREATMENTS :

T_0=Control (untreated), T_1=DDT 5% dusting, T_2=BHC 10% dusting, T_3=DDT 0·1% spraying, T_4= BHC=0·05% spraying. T_5=Endrin 0·02% spraying, T_6=Parathion 0·026% spraying, T_7=Trithion 0·06% spraying, and T_8=Methyl—demeton 0·1% spraying.

Three rounds of treatments were applied.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 7·9 cm. × 49·4 cm. (iii) 4. (iv) (a) 7·9 cm. × 5·5 cm. (b) 7·3 cm. × 4·9 cm. (v) 30 cm. × 30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of other pests and diseases negligible. (iii) Infestation data and yield of seeds. (iv) (a) 1963—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 469 Kg/ha. (ii) 30·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of seeds in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	385	564	422	415	426	597	438	463	511

C.D.=44·1 Kg/ha.

Crop :- Gingelly (*Summer*). **Ref :- T.N. 63(110).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—Fungicidal trial against leaf-spot disease of Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Red sandy loam. (b) N.A. (iii) 13.3.63. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines. (c) 5 Kg/ha. (d) 30 cm. × 15 cm. (e) 1. (v) 187·5 Q/ha. of F.Y.M. (vi) TMV—3. (vii) Irrigated. (viii) Thinning and weeding. (ix) 13 cm. (x) 4.6.63.

2. TREATMENTS :

9 fungicidal treatments : T_0=Control, T_1=Bordeaux Mixture 1% spray (Copper Sulphate at 11.100 Kg/ha.+ lime at 11·100 Kg/ha.) T_2=Fytolan 0·25% spray at 2·775 Kg/ha., T_3=Fungimar 0·25% spray at 2·775 Kg/ha., T_4=Dithane M-2—0·15% spray at 1·665 Kg/ha., T_5= Flit 406—0·2% spray at 2·220 Kg/ha., T_6=Brestan 0·1% spray at 1·110 Kg/ha., T_7= Lonacol 0·1% spray at 1·110 Kg/ha. and T_8=22·4 Kg/ha. of Ceresem lime dust.

Fungicidal spray was used at 1110 litres/ha. and 2 rounds of spray and dusting were given.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 5·5 m. × 32·9 m. (iii) 4. (iv) (a) 5·5 m. × 3·7 m. (b) 3·7 m. × 2·4 m. (v) 91 cm. × 61 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of other diseases and pests negligible. (iii) Infestation data and yield of seeds (iv) (a) 1963—only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 948 Kg/ha. (ii) 141·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of seeds in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	859	989	946	957	926	902	1022	955	979

Crop :- Gingelly (*Summer*). **Ref :- T.N. 64(118).**
Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :—To findout a suitable fungicide to control leaf spot disease on Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 16.3.64. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines. (c) 5 Kg/ha. (d) 30·5 cm.×30·5 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV—3. (vii) Irrigated. (viii) Thinning and weeding. (ix) 1·6 cm. (x) 5.6.64.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control, T_1=Bordeaux mixture 1% spray (Cu. Sul. at 11.1 Kg/ha.+lime at 11·1 Kg/ha.) T_2=Brestan 0·1% spray at 1·110 Kg/ha., T_3=Dithane Z—78 0·15% spray at 1·665 Kg/ha., T_4=Flit 406. 0·2% spray at 2·220 Kg/ha., T_5=Fungimar 0·25% spray at 2·775 Kg/ha.,T_6=Fytolan 0·25% spray at 2·775 Kg/ha. and T_7=22·4 Kg/ha. of Ceresan lime dust.

Fungicidal spray fluid was used at 1100 litres per ha. in one round.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 7·3 m.×48·8 m. (iii) 4. (iv) (a) 7·3 m.×6·1 m. (b) 5·5 m.×4·3 m. (v) 91 cm. ×91 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (b) Nil. (c) Yield of grain. (iv) (a) 1964 only. (b)—(c) Nil. (v) and (vi) Nil. (vii) The fungicides were applied one month after sowing in anticipation of disease infection. But as infection was practically nil only grain yield data could be recorded.

5. RESULTS :

(i) 410 Kg/ha. (ii) 71·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	408	433	397	450	422	378	408	382

Crop :- Gingelly (*Cold weather*). **Ref :- T.N. 62(103).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :— To study the efficacy of various, insecticides in controlling leaf and pod caterpillar-Antigastra Catalunalis in Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of Compost. (ii) (a) Red sandy loam. (b) N.A. (iii) 28.11.62. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines with the help of hand hoes. (c) 5 Kg/ha. (d) 23 cm.×23 cm. (e) 1. (v) 125 Q/ha. of Compost. (vi) TMV-2. (vii) Unirrigated. (viii) Thinning and weeding. (ix) 10 cm. (x) 22.2.63.

2. TREATMENTS :

6 insecticidal treatments : T_0=Control, T_1=D.D.T. 0·2% spray at 3·6% Kg/ha of D.D.T. 50% W.P., T_2= B.H.C 0·05% spray at 7·0 Kg/ha of B.H.C. 50% W.P., T_3=Parathion 0·025% spray at 450 ml. Parathion 50% E.C. T_4=D.D.T. 5% dust at 25 Kg/ha. and T_5=B.H.C. 5% dust at 25 Kg/ha.

Spray fluid used was at 900 litres/ha. per round of spray. 2 rounds of treatments were given.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 4·4 m.×25·6 m. (iii) 2. (iv) (a) and (b) 4·3 m.×4·4 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of other pests and diseases negligible. (iii) Infestation data and yield of grain. (iv) (a) 1962 only. (b)—(c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 148 Kg/ha. (ii) 81·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	100	125	101	179	147	238

Crop :- Gingelly (*Summer*). **Ref :- T.N. 63(126).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :— To study the comparative efficacy of various insecticides in controlling Antigastra catalunalis leaf and pod caterpillar in Gingelly.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Red Sandy loam. (b) N.A. (iii) 28.3.63. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines with the help of hand hoes. (c) 5 Kg/ha. (d) 30 cm.×30 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) TMV-3. (vii) Irrigated. (viii) Thinning and weeding. (ix) 16 cm. (x) 29.6.63.

2. TREATMENTS :

Same as in expt. no. 62 (103) on page 585.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 6·4 m.×36·6 m. (iii) 4. (iv) (a) 6·4 m.×6·1 m. (b) 5·2 m.×4·9 m. (v) 61 cm. ×61 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of other pests and diseases negligible. (iii) Infestation data and yield of grain. (iv) (a) 1962 and 63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 515 Kg/ha. (ii) 41·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	487	511	571	518	516	488

Crop :- Gingelly (*Cold weather*). **Ref :- T.N. 63(127), 64(133).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :— To study the comparative efficacy of various insecticides in controlling leaf and pod caterpillar in Gingelly.

1. LBASA CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of compost for 63 (127) ; 125 Q/ha. of compost for 64 (133). (ii) Red sandy loam. (iii) 28.12.63 ; 7.12.64. (iv) (a) 4 ploughings with Cooper plough. (b) Sowing in lines with the help of hand hoes. (c) 5 Kg/ha. (d) 30 cm.×30 cm. (e) 1. (v) 125 Q/ha. of C.M. for 63 (127) ; 62·5 Q/ha. of F.Y.M. for 64(133). (vi) TMV-1 for 63 (127) ; TMV-2 for 64 (133). (vii) Irrigated. (viii) Thinning and weeding. (ix) 11·3 cm. for 63 (127) ; 3 cm. for 64 (133). (x) 26.3.64 ; 4.3.65.

2. TREATMETS :

9 insecticidal treatments : T_0=Control, T_1=D.D.T. 5% dust at 25 Kg/ha., T_2=B.H.C. 10% dust at 25 Kg/ha., T_3=D.D.T. 0·1% spray at 1·81 Kg/ha. of D.D.T. 50% W.P., T_4= B.H.C. 0·05% spray at 7·0 Kg/ha. of B.H.C. 50% W.P., T_5=Endrin 0·02% spray at 900 ml. Endrin 20% E.C., T_6=Parathion 0·025% spray at 450 ml. Parathion 50% E.C., T_7=Trithion 0·06% spray 2700 ml. Trithion 20% E.C. and T_8=Methyldemeton 0·1% spray (900 ml. Methyldemeton 25% E.C.).

The spray fluid used was 900 litres/ha. for one round of spray for the above treatments. Four rounds of the above treatments applied.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 46·6 m.×5·2 m. for 63 (127) ; 57·6 m.×6·4 m. for 64 (133). (iii) 4. (iv) (a) and (b) 5·2 m.×5·2 m. for 63 (127) ; 6·4 m.×6·4 m. for 64 (133). (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal for 63 (127) ; Good for 64 (133). (ii) Pests and disease incidence negligible. (iii) Infestation data and yield of grain. (iv) (a) 1963-64.(b) No. (c) Nil. (v) and (vi) Nil. (vii) Error variance are heterogeneous and Treatments×years interaction is absent. Therefore results of individual years are presented under 5. Results.

5. RESULTS :

63(127)

(i) 142 Kg/ha. (ii) 7·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av yield	96	188	109	138	113	180	142	150	162

C.D.=11·7 Kg/ha.

64(133)

(i) 284 Kg/ha. (ii) 52·6 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	212	293	265	279	334	341	277	274	278

C.D.=76·8 Kg/ha.

Crop :- Castor (*Monsoon*). **Ref :- T.N. 61(9).**

Site :- Castor Res. Stn., Salem. **Type :- 'M'.**

Object :—To study the efficacy of the application of C/A/N in comparison with A/S on Castor crop.

1. BASAL CONDITIONS :

(i) (a) *Cholam* after Castor. (b) *Cholam*. (c) 25 C.L./ha. of Compost. (ii) Red loamy. (iii) 14.7.61. (iv) (a) 1 ploughing by tractor plough and 2 ploughing by country plough. (b) In lines with the help of sowing rods. (c) 10 Kg/ha. (d) 91 cm.×91 cm. (e) 1. (v) Nil. (vi) TMV—1. (Med). (vii) Unirrigated. (viii) 2 hoeings and weeding around plants and working H.M. guntaka No. 2 and 1 intercultivation. (ix) 86 cm. (x) 17.1.62 to 28.2.62.

2. TREATMENTS :

9 manurial treatments : M_0=Control, M_1=22·4 Kg/ha. of N as A/S, M_2=22·4 Kg/ha. of P_2O_5 as Super, M_3 =33·6 Kg/ha. of K_2O as Mur. Pot ; $M_4=M_1+M_2$, $M_5=M_1+M_2+M_3$, M_6=22·4 Kg/ha. of N as C/A/N, $M_7=M_2+M_6$ and $M_8=M_2+M_3+M_6$.

24·7 C.L./ha. of C.M. along with treatments except in control plot applied 10 days before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 20·1 m.×43·6 m. (iii) 2. (iv) (a) 20·1 m.×4·6 m. (b) 18·3 m.×2·7 m. (v) 91 cm. ×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of capsules in grams, plant height, height upto main spike, no. of branches, spike length and flowering period. (iv) (a) 1961 only. (b)—(c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 317 Kg/ha. (ii) 169·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of castor in Kg/ha.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
Av. yield	198	336	334	218	298	433	570	176	292

Crop :- Castor (*Monsoon*). **Ref :- T.N. 63(84).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study in detail the biology of the pest and evolve a suitable method for its control.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) N.A. (ii) Loamy. (iii) 8.8.63. (iv) (a) 3 ploughings. (b) Line sowing. (c) 15 to 18 Kg/ha. (d) 90 cm.×90 cm. (e) 1. (v) 5600 Kg/ha. of F.Y.M. (vi) TMV—3. (vii) Irrigated. (viii) Weeding and thinning. (ix) 28 cm. (x) 17.1.64 to 21.4.64 (3 harvestings).

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Parathion 0·05%, T_2=Malathion 0·1%, T_3=D.D.T. 0·1%, T_4= B.H.C. 0·05%, T_5=Dylox 0·1%, T_6=Metasystox 0·1% and T_7=Carboryl 0·1%.

The insecticides were applied as foliar sprays. 3 rounds of treatments were given at tri-weekly intervals starting from the flowering stage. The spray formulations were given at 900 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 10·1 m.×8·2 m. (b) 8·2 m.×6·4 m. (v) 91 cm.×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Counts were taken on both earhead and capsules and yield. (iv) (a) 1963—contd. (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Castor yield

(i) 191 Kg/ha. (ii) 118.2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	129	183	172	178	291	140	226	205

Infestation data on capsule basis

(i) 11·1 degrees. (ii) 2·20 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean angle	17·3	10·9	9·9	10·9	10·7	8·2	10·2	10·3

C.D.=3·2 degrees.

Crop :- Castor (*Main*). **Ref :- T.N. 64(89).**

Site :- Agri. College and Res. Instt., Coimbatore. **Type :- 'D'.**

Object :—To study the biology of pests and to evolve suitable methods of control.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Castor. (c) Nil. (ii) Loamy. (iii) 8.9.64. (iv) (a) 3 ploughings. (b) Line sowing. (c) 15 to 18 Kg/ha. (d) 91 cm.×91 cm. (e) 1. (v) 5600 Kg/ha. of F.Y.M. (vi) TMV—3. (vii) Irrigated. (viii) Weeding, thinning and gap filling. (ix) 51 cm. (x) 15.1.65 to 13.3.65 (3 harvestings).

2. TREATMENTS :

10 insectieidal treatments : T_0=Control, T_1=Parathion 0·05%, T_2=Malathion spray 0·1%, T_3=D.D.T. spray 0·1%. T_4=B.H.C. spray 0·05%, T_5=Dipterex spray 0·1%, T_6=Metasystox spray 0·1%, T_7=Serin spray 0·1%, T_8=Imidan spray 0·1% and T_9=Lebayied spray 1%.

The insecticides are applied as foliar sprays thrice at tri-weekly intervals starting when the infloresences are put forth at 900 litres/ha. of spraying fluid.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 9·5 m.×7·3 m. (b) 7·6 m.×5·5 m. (v) 91 cm.×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) %age of infected earheads and no. of capsules etc. were taken at weekly intervals. Castor yield. (iv) (a) 1963—contd. (modified every year). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Castor yield

(i) 697 Kg/ha. (ii) 112·6 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	807	733	733	660	807	733	587	733	697	477

C.D.=193·1 Kg/ha.

Infestation data on capsules basis

(i) 14·3 degrees. (ii) 2·1 degrers. (iii) Treatment differences are highly significant. (iv) Mean percentage of affected capsules in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean angle	23·3	10·3	13·0	15·5	13·4	12·6	13·9	12·8	13·0	15·4

C.D.=3·1 degrees

Crop :- Castor (*Monsoon*). **Ref :- T.N. 62(110).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D':**

Object: —To study the comparative efficacies of different insecticides in controlling the pest 'Prodeina litura' of Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M (ii) Red sandy loam. (iii) 25.8.62. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling seeds in holes made by wooden pegs. (c) 7·5 Kg/ha. (d) 91 cm.×91 cm. (e) 1. (v) 125 Q/ha- of Compost. (vi) TMV—3. (vii) Unirrigated. (viii) 2 hoeings and weedings. (ix) 86 cm. (x) 22.3.63 and 22.4.63.

2. TREATMENTS :

8 insecticidal treatments : T_0=Control, T_1=Parathion 0·05% spray 900 ml/ha. Parathion 50%, T_2=Endrin 0·02% spray 900 ml/ha. Endrin 20% E.C., T_3=Malathion 0·1% spray 1800 ml/ha. Malathion 50% W.P., T_4=D.D.T. 0·1% spray, 1·81% Kg/ha. D.D.T. 50% W.P., T_5=B.H.C. 0·05% spray, 7·0 Kg/ha. B.H.C. 50% W.P., T_6=D.D.T. 10% dust 25 Kg/ha. and T_7=B.H.C. 10% dust at 25 Kg/ha.

The spray fluid used was at 900 litres/ha. per round. Three rounds of the above Treatments applied.

3, DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 29·3 m.×3·7 m. (iii) 4. (iv) (a) and (b) 3·7 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of other pests and diseases negligible. (iii) Pest infestation data and yield of beans. (iv) (a) 1962–63. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 210 Kg/ha. (ii) 89·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	179	193	180	188	216	257	245	219

Crop :- Castor (*Summer*). **Ref :- T.N. 63(136).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :— To study the comparative efficacies of different insecticides in controlling the pest Prodenia litura of Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 125 Q/ha. of C.M. (ii) Red sandy loam. (iii) 16.2.63. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling seeds in holes made by wooden pegs. (c) 7·5 Kg/ha. (d) 91 cm.× 91 cm (e) 1. (v) 125 Q/ha. of Compost. (vi) TMV-3. (vii) Irrigated. (viii) 2 hoeings and weeding. (ix) 13 cm. (x) 7.6.63 to 13.7.63.

2. TREATMENTS :

Same as in expt. no. 62 (110) as above.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 29·3 m.×9·1 m. (iii) 4. (iv) (a) and (b) 9·1 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of other pests and diseases, negligible. (ii) Pest infestation data and yield of beans. (iv) (a) 1963 only. (b)—(c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1144 Kg/ha. (ii) 196·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	735	1261	1254	1299	1191	1121	1183	1111

C.D.=288·9 Kg/ha.

Crop :- Castor (*Summer*). **Ref :- T.N. 64(141).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'M'.**

Object :— To study the comparative efficacies ofdifferent insecticides in controlling the pest Prodenia Litura on Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of C.M. (ii) Red sandy loam. (iii) 18.2.64. (iv) 4 ploughings with Cooper plough. (b) Dibbling seeds in holes with the help of planting board. (c) 7·5 Kg/ha. (d) 91 cm.×91 cm. (e) 1. (v) 125 Q/ha. of compost. (vi) TMV-3. (vii) Irrigated. (viii) 2 weedings. (ix) 3 cm. (x) 3.6.64 and 17.6.64.

2. TREATMENTS ;

7 insecticidal treatments : T_0=Control, T_1=D.D.T. 5% dust at 25 Kg/ha., T_2=B.H,C. 10% dust at 25 Kg/ha., T_3=D.D.T. 0·1% spray at 1·8 Kg/ha. D.D.T. 50% W.P., T_4=B.H.C. 0·05% spray at 7·0 Kg/ha. B.H.C. 50% W.P., T_5=Endrin 0·02% spray at 900 ml./ha. Endrin 20% and T_6=Parathion 0·025% spray at 450 ml/ha. Parathion 50%.

The spray fluid used was at 900 litres/ha. per round of spray. Three rounds of the above treatments applied.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 8·2 m.×25·6 m. (iii) 4. (iv) (a) 8·2 m.×3·7 m. (b) 6·4 m.×1·8 m. (v) 91 cm. ×91 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of other pests and diseases negligible. (iii) Infestation data and yield of beans. (iv) (a) 1964 only. (b) –(c) Nil. (v) and (vi) Nil. (vii) Raw data N.A.

5. RESULTS :

(i) 862 Kg/ha. (ii) 50·6 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	709	829	728	929	760	1017	1061

C.D.=75·1 Kg/ha.

Crop :- Castor (*Monsoon*). **Ref :- T.N. 64(142).**

Site :- Reg. Res. Stn., Tindivanam. **Type :- 'D'.**

Object :— To study the comparative efficacies of different insecticides in controlling the pest Prodenia Litura on Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Groundnut. (c) 62·5 Q/ha. of C.M. (ii) Red sandy loam. (iii) 20.8.64. (iv) (a) 4 ploughings with Cooper plough. (b) Dibbling. (c) 7·5 Kg/ha. (d) 91 cm.×91 cm. (e) 1.(v) 62·5 Q/ha. of Compost. (vi) TMV-2 (early). (vii) Unirrigated. (viii) 2 hoeings and weeding. (ix) 72 cm. (x) 2.3.65 and 27.3.65.

2. TREATMENTS :

9 insecticidal treatments : T_0=Control, T_1=D.D.T. 5% dust at 25 Kg/ha., T_2=B.H.C. 10% dust at 25 Kg/ha., T_3=Imidan 2% dust at 25 Kg/ha., T_4=Trithion 2% dust at 25 Kg/ha. T_5=Parathion 0·025% spray at 450 ml./ha. Parathion 5%, T_6=Dipterex 0·1% spray at 1·125 Kg/ha. Dipterex 80% S.P., T_7=Sevin 0·1% spray at 1·059 Kg/ha. Carboryl 85% W.P. and T_8=Endrin 0·02% spray at 900 ml/ha Endrin 20% E.C.

Spray fluid was used at 900 litres/ha. per round of spray. Three rounds of the above treatments applied.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 2·7 m.×24·7 m. (iii) 4. (iv) (a) and (b) 2·7 m.×2·7 m (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of other pests and diseases are negligible. (iii) Infestation data and yield of beans. (iv) (a) 1964 only. (b) — (c) Nil. (v) to (vii) Nil.

5, RESULTS :

Castor yield

(i) 269 Kg/ha. (ii) 141·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield castor in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	194	344	196	303	200	243	281	352	305

Infestion data

(i) 23·6 degrees. (ii) 9·9 degrees (iii) Treatment differences are not significant. (iv) Mean percentage of infestation in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	23·0	20·6	30·1	23·5	21·3	26·8	23·6	21·2	22·2

Crop :- Safflower (*Main*). **Ref :- T.N. 64(47).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against leaf spot disease of Safflower.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) 112 Kg/ha. of A/S+123·5 Q/ha. of F.Y.M. (ii) Black soil. (iii) 19.10.64. (iv) (a) 3 ploughings. (b) Sowing in lines. (d) 13 Kg/ha. (d) 61 cm.×30 cm. (e) 1. (v) 123·5 Q/ha. of F.Y.M. (vi) Medium. (vii) Unirrigated. (viii) Gap filling, thinning, weeding, hoeing etc. (ix) N.A. (x) 20.2.65.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control, T_1=Fytolan 0·25%, T_2=Dithane 0·15%, T_3=Wet Sulphur 1% and T_4=Bordeaux mixture 1%.

Spray fluid used at 1130 litres/ha. The treatments commenced one month after sowing and then repeated thrice at tri-weekly interval.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 3·7 m.×2·4 m. (b) 2·4 m.×2·4 m. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) As per treatments. (iii) Counts of pests and yield of Safflower. (iv) (a) 1964—only. (b) — (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 896 Kg/ha. (ii) 104·2 Kg/ha. (iii) Treatments differences are not significant. (iv) Av. yield of Safflowers in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	895	1000	904	861	819

Total disease indices for 20 plants in each plot

(i) 58·1 degrees. (ii) 5·5 degrees. (iii) Treatment differences are highly significant. (iv) Mean disease indices.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	68·3	52·5	61·3	61·0	47·3

C.D.=8·4 degrees.

Crop :- Safflower (*Main Season*). **Ref :- T.N. 63(155).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the pests of Safflower.

1. BASAL CONDITIONS :

(i) (a) Cotton—Safflower. (b) Cotton. (c) N.A. (ii) Black soil. (iii) 5.11.63. (iv) (a) 3 ploughings with Victory plough. (b) Dibbling in lines. (c) 14 Kg/ha. (d) 45 cm. × 30 cm. (e) 1. (v) 125 Q/ha. of F.Y.M. (vi) M – 852 (medium). (vii) Unirrigated. (viii) 2 weedings, hoeing, thinning and gap-filling. (ix) 70 cm. (x) July, '64.

2. TREATMENTS :

7 insecticidal treatments : T_0=Control, T_1=B.H.C. 10% dust at 25 Kg/ha., T_2=D.D.T. 5% dust at 25 Kg/ha., T_3=Carboryl (Sevin) 10% dust at 25 Kg/ha., T_4=Endrin 0·02% spray at 11·3 Kg/ha., T_5=Parathion 0·025% spray at 11·3 Kg/ha. and T_6=Carboryl 0·1% spray at 11·3 Kg/ha.

Four rounds of treatments were given at tri-weekly intervals commencing two weeks after sowing. The dust formulations were applied with muslin cloth and sprays with a high volume Rocker sprayer.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 6·7 m. × 1·8 m. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

Yield

(i) Good. (ii) As per treatments. (iii) Incidence of cater-pillars was recorded and yield of Safflowers. (iv) (a) 1963—64 (modified). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 184 Kg/ha. (ii) 64·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Safflower in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	173	175	194	214	183	147	201

Incidence of Carter-pillars

(i) 28·5 degrees. (ii) 4·0 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle	28·9	31·9	26·8	34·7	22·1	25·4	29·8

C.D.=5·9 degrees.

Crop :- Safflower (*Main Season*). **Ref :- T.N. 64(166).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against the pests of Safflower.

1. BASAL CONDITIONS :

(i) (a) Cotton—Safflower. (b) Cotton. (c) N.A. (ii) Black soil. (iii) 19.10.64. (iv) (a) 3 ploughings. (b) Dibbling in lines. (c) 14 Kg/ha. (d) 60 cm.×30 cm. (e) 2. (v) 125 Q/ha. of F.Y.M. (vi) N—852. (vii) Unirrigated. (viii) Gap-filling, thinning, weeding and hoeing. (ix) 28 cm. (x) 3.3.65.

2. TREATMENTS :

10 insecticidal treatments : T_0=Control, T_1=Carboryl 10% dust at 25 Kg/ha., T_2=B.H.C. 10% dust at 25 Kg/ha., T_3=D.D.T. 5% dust at 25 Kg/ha., T_4=Heptachlor 6% dust at 25 Kg/ha., T_5=Endrin granules at 40·4 Kg/ha., T_6=Heptachlor granules at 40·4 Kg/ha., T_7=Endrin 0·02% spray at 11·3 Kg/ha., T_8=Parathion 0·025% spray at 11·3 Kg/ha. and T_9=Thiometon 0·1% spray at 24 Kg/ha.

Four rounds of treatments were given at two weeks interval commencing from three weeks after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 4·6 m.×2·4 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) (a) Good. (ii) As per treatments. (iii) Incidence of cater-pillars attacking recorded. (iv) (a) 1964—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 266 Kg/ha. (ii) 44·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Safflowers in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	216	292	327	250	264	264	237	295	251	268

Incidence of Catter-pillars

(i) 8·8 degrees. (li) 2·5 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Mean angle	16·0	2·9	8·1	9·1	7·2	9·7	7·5	5·5	9·1	11·7

C.D.=3·7 degrees.

Crop :- Chillies(*Main*). **Ref :- 62(15), 63(24), 64(29).**

Site :- Cotton Breeding Stn.. Coimbatore. **Type :- 'M'.**

Object :—To study the effect of soil and foliar application of micro-nutrients on Chillies.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. for 62(15); Chillies for others. (c) N.A. for 62(15); 370 Q/ha. of F.Y.M.+224 Kg/ha. of Super+112 Kg/ha. of each of A/S and Mur. Pot. for others. (ii) Red loamy. (iii) 24.7.62/10.9.62; 25.6.63/9.8.63; 27.5.64/20.7.64. (iv) (a) 4 ploughings and forming beds. (b) Raising nurseries. (c) 28 to 42 Kg/ha. (d) 46 cm.×46 cm. (e) 1. (v) As per treatments. (vi) Sathur Samba. (vii) Irrigated. (viii) 3 weedings and hoeings. (ix) 49 cm.; 30 cm : 65 cm. (x) 28.2 63; 17.12.63; 8.1.65.

2. TREATMENTS :

All combinations of (1), (2), (3)+2 extra treatments

(1) 3 micro-nutrients : N_1=Cu. Sul. N_2=Mg. Sul. and N_3=Zn. Sul.

(2) 3 levels of micro-nutrients : L_1=5·6, L_2=11·2 and L_3=22·4 Kg/ha.

(3) 2 methods of application : M_1=Soil application and M_2=Foliar application.

Extra treatments are E_0=Control and E_1=Water spray.

Soil application was done at the time of planting. Foliar application was split up into three equal units and applied at fortnightly intervals from one month after planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 20. (b) N.A. (iii) 4. (iv) (a) and (d) 3·7 m.×1·8 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Fair growth. (ii) Nil; As a preventive measure, spraying of wettable B.H.L. once in every 10 days for 6 times were done. (iii) Plant height, flower production and fruits weight. (iv) (a) 1962—64. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 139·1 Q/ha. (ii) 45·1 Q/ha. (based on 30 d.f. made up of various components of Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. yield of Chillies in Q/ha.

E_0=134·4 and E_1=132·1 Q/ha.

	N_1	N_2	N_3	M_1	M_2	Mean
L_1	157·9	132·8	146·2	154·8	136·4	145·6
L_2	119·9	131·0	153·2	146·6	122·8	134·7
L_3	150·2	139·3	126·6	146·3	131·1	138·7
Mean	142·7	134·4	142·0	149·2	130·1	139·7
M_1	154·6	135·3	157·8			
M_2	130·7	133·4	126·2			

Years	N_1	N_2	N_3	Sig.	L_1	L_2	L_3	Sig.
1962	185·8	118·4	151·2	N.S.	153·7	135·3	166·4	N.S.
1963	88·8	117·7	115·3	N.S.	124·2	109·9	87·7	N.S.
1964	153·3	166·8	159·5	N.S.	158·9	158·8	161·8	N.S.
Pooled	142·7	135·4	142·0	N.S.	145·6	134·7	138·7	N.S.

Years	M_1	M_2	Sig.	G.M.	S.E./plot
1962	164·3	139·2	N.S.	149·7	N.A.
1963	115·1	99·4	N.S.	107·1	70·6
1964	168·3	151·4	N.S.	160·2	34·7
Pooled	149·6	130·1	N.S.	139·1	45·1

Crop :- Chillies (*Kharif*). **Ref :- T.N. 62, 65(S.F.T.).**

Site :- (District) : Tirunelveli. **Type :- 'M'.**

Object : - Type A_1 : To study the response curves of important cereal, cash and oilseed crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=60 Kg/ha. of N.
N_2=120 Kg/ha. of N.
P_1=30 Kg/ha. of P_2O_5.
N_1P_1=60 Kg/ha. of N +30 Kg/ha. of P_2O_5.
N_2P_1=120 Kg/ha. of N+30 Kg/ha. ofP_2O_5.
N_2P_2=120 Kg/ha. of N+60 Kg/ha. of P_2O_5.
$N_2P_2K_1$=120 Kg/ha. of N+60 Kg/ha. of P_2O_5+60 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii)A selected district is divided into four agriculturally homogeneous zones based on climate, soil, croppingpattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type—C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type—C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type—C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1966 [1963—N.A.] and 1964. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Tirunelveli

62 (S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of chillies in Kg/ha.	494	345	469	642	877	1260	1507	227·9

Control yield=3755 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of chillies in Kg/ha.	275	450	366	558	658	800	950	60·4

Control yield=1266 Kg/ha. ; No. of trials=6.

— — —

Crop :- Chillies. **Ref :- T.N. 65(S.F.T.).**

Site :- (District) : R. Puram. **Type :- 'M'.**

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_1 (*Kharif*, Irrigated) on page 596.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of chillies in Kg/ha.	199	132	108	408	233	—17	158	158·3

Control yield=816 Kg/ha. ; No. of trials=3.

Crop :- Chillies(*Kharif*). **Ref :- T.N. 65(S.F.T.) for Trichy and 62, 65(S.F.T.) for Tirunelveli.**

Site :- (District) : Trichy and Tirunelveli. **Type :- 'M'.**

Object :—Type A_2. : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=60 Kg/ha. of N.
P_1=30 Kg/ha. of P_2O_5.
P_2=60 Kg/ha. of P_2O_5.
N_1P_1=60 Kg/ha. of N+30 Kg/ha. of P_2O_5.
N_1P_2=60 Kg/ha. of N+60 Kg/ha. of P_2O_5.
N_2P_2=120 Kg/ha. of N+60 Kg/ha. of P_2O_5.
$N_2P_2K_2$=120 Kg/ha. of N+60 Kg/ha. of P_2O_5+120 Kg/ha. K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in Type A_1 (Irrigated, *Kharif*) on page 596.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only for Trichy and 1962 to 1966 (1963 and 1964—N.A.) for Tirunelveli. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Trichy

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of chillies in Kg/ha.	140	24	146	186	130	288	401	87·7

Control yield=1272 Kg/ha. ; No. of trials=2

Tirunelveli

62(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of chillies in Kg/ha.	123	98	247	667	840	889	1655	210·3

Control yield=3706 Kg/ha. ; No. of trials=4

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of chillies in Kg/ha.	283	166	266	525	666	825	1091	52·8

Control yield=1241 Kg/ha. ; No. of trials=6.

Crop : Chillies. **Ref :- T.N. 65(S.F.T.)**

Site :- (District) : R. Puram. **Type : 'M'.**

Object :—Type A_2 : To study the response curves of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN:

Same as in Type A_2 (*Kharif*, Irrigated) on page 597.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965—only. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of chillies in Kg/ha.	—188	—389	—1	161	—213	250	262	289·7

Control yield=1088 Kg/ha. ; No. of trials=2.

Crop :- Chillies **Ref :- T.N. 65(S.F.T.)**

Site :- (District) : R. Puram. **Type :- 'M'.**

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :
O =Control (no manure).
N_1 =60 Kg/ha. of N.
K_1 =60 Kg/ha. of K_2O.
K_2 =120 Kg/ha. of K_2O.
N_1K_1 =60 Kg/ha. of N+60 Kg/ha. of K_2O.
N_1K_2 =60 Kg/ha. of N+120 Kg/ha. of K_2O.
N_2K_2 =120 Kg/ha. of N+120 Kg/ha. of K_2O.
$N_1P_1K_1$ =60 Kg/ha. of N+30 Kg/ha. of P_2O_5+60 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in Type A_1 (Irrigated, *kharif*) on page 595.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1965 to 1966. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of chillies in Kg/ha.	208	542	299	216	307	341	716	167·0

Control yield=666 Kg/ha. ; No. of trials=3.

Crop :- Chillies (*Kharif*). **Ref :- T.N. 62, 65(S.F.T.)**

Site :- (District) : Tirunelveli. **Type :- 'M'.**

Object :—Type A_8 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_3 (Unirrigated) on page 598.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1962 to 1965 [1963 and 1964—N.A.]. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of chillies in Kg/ha.	247	98	172	543	617	714	1074	122·8

Control yield=3706 Kg/ha.; No. of trials=4.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of chillies in Kg/ha.	250	141	249	474	608	808	1000	45·7

Control yield=1033 Kg/ha.; No. of trials=6.

Crop :- Chillies (*Rabi*). **Ref :- T.N. 62(S.F.T.) for Tirunelveli and 65(S.F.T.) for Trichy.**

Site :- (District) : Tirunelveli and Trichy. Type : 'M'.

Object :—Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Red sandy. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in Type A_3 (Unirrigated) on page 598.

4. GENERAL :

(i) to (iii) N.A (iv) (a) 1962 only for Tirunelveli and 1965-only for Trichy. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Tirunelveli

62(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of chillies in Kg/ha.	263	—164	296	181	889	1515	823	451·8

Control yield=4217 Kg/ha.; No. of trials=3,

Trichy

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of chillies in Kg/ha	235	—42	—403	286	—58	—83	148	181.6

Control yield=890 Kg/ha.: No. of trials=2.

* * *

Crop :- Chillies (*Main*). **Ref :- T.N. 62(128).**

Site :- Groundnut Res. Stn., Pollachi. Type :- 'D'.

Object :—To find out the suitable method of controlling nematodes associated with yellowing decline of Chillies.

1. BASAL CONDITIONS.

(i) (a) Nil. (b) and (c) N.A. (ii) Red sandy soil. (iii) N.A./20.6.62. (iv) (a) 2 ploughings with country ploughs and forming beds. (b) Raising nurseries and transplanting. (c) 5 to 7 Kg/ha. (d) 91 cm.×91 cm. (e) 1. (v) 600 Q/ha. of F.Y.M. (vi) Local samba (late). (vii) Irrigated. (viii) 2 hand weedings and 2 earthing up with mummuthies. (ix) 91 cm. (x) November. 62 to April, 63 (exact dates—N.A.).

2. TREATMENTS :

4 chemical treatments : T_0=Control, T_1=Nemagon (DBCP) in pre-plant irrigation water at 11·2 litres/ha. (100%) E.C., T_2=Nemagon (DBCP) soil injection at 16·8 litres/ha. (100%) E.C. and T_3=D.D. soil injection at 280 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 39·6 m.×6·1 m. (iii) 6. (iv) (a) 6·1 m.×9·1 m. (b) 4·6 m.×9·1 m. (v) One row on either side (vi)Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of thrips Folidol and Endrin were spayed. (iii) Yield of chillies and nematode counts. (iv) (a) No. (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 50·2 Q/ha. (ii) 13.6 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of chillies in Q/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	48·1	55·6	47·3	49·7

Crop :- Chillies (*Main*). **Ref :- T.N. 63(180).**

Site :- Groundnut Res. Stn., Pollachi. **Type :- 'D'.**

Object :—To find out suitable method of controlling nematodes associated with yellowing decline of Chillies.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Red sandy soil. (iii) 9.5.1963/29.6.1963. (iv) (a) 3 ploughings with country plough and forming beds. (b) Raising nurseries and transplanting. (c) 5 to 7 Kg/ha. (d) 91 cm.× 91 cm. (e) 1. (v) 500 Q/ha. of F.Y.M. (vi) Local Samba (late). (vii) Irrigated. (viii) 2 hand hoeings and earthing up with mummuthies. (ix) 73 cm. (x) 9.10.1963 to 6.3.1964.

2. TREATMENTS :

10 chemical treatments : T_0=Control, T_1=DD—preplanting soil injection at 225 litres/ha., T_2=DD—preplanting soil injection at 225 litres/ha. followed by post planting application of DBCP in irrigation water at 18·0 litres (60% EC)/ha. 3 months after transplanting, T_3=DBCP pre-planting application in irrigation water at 36·0 litres (60% EC)/ha., T_4=DBCP pre-planting application in irrigation water at 18·0 litres(60% EC)/ha. followed by a post planting application of the same at the same dosage 3 months after planting, T_5=DBCP post-planting application in irrigation water at 18·0 litres (60% EC)/ha. 3 weeks and 3 months after planting, T_6=Enhanced application of F.Y.M. at 1250 Q/ha., T_7=Raking up soil once a week 4 times before planting, T_8=EDB at 320 Kg/ha. and T_9=G. 1514 at 12 Kg. per area of 100 square metres.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 4·0 m.×4·0 m. (b) 3·1 m.×3·1 m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No serious incidence of pests and diseases. (iii) Yield of chillies and nematode counts. (iv) (a) No. (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 181·3 Q/ha. (ii) 42·0 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Chillies in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	182·8	191·7	184·4	194·0	205·1	134·4	179·2	194·9	185·2	161·7

Crop :- Chillies (*Main*). **Ref :- T.N. 64(187).**

Site :- Groundnut Res. Stn., Pollachi **Type :- 'D'.**

Object :—To find out suitable method of controlling nematodes associated with yellowing decline of Chillies.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Red sandy soil. (iii) 15.5.64/15.8.64. (iv) (a) 3 ploughings with country plough and forming beds. (b) Raising nurseries and transplanting. (c) 5 to 7 Kg/ha. (d) 91 cm×91 cm. (e) 1. (v) 625 Q/ha. of F.Y.M. (vi) Local samba (late). (vii) Irrigated. (viii) 2 hand hoeings and 2 earthing up with mummuthies. (ix) 82 cm. (x) 15.12.1964 to 3.3.1965.

2. TREATMENTS:

10 chemicals treatments : T_0=control, T_1=D.D. pre—planting soil injection. at 225 litres/ha., T_2=D.D. pre-planting soil injection at 225 litres/ha. followed by Nemagon in post planting irrigation water at 18·0 litres (60% EC)/ha. 3 weeks after transplanting, T_3= Nemagon in pre-planting irrigation water at 36 litres/ha., T_4=Nemagon in pre-planting irrigation water at 36 liters/ha followed by Nemagon in post planting irrigation water at 18 litres ha.(2months after planing first and subsequently once in 8 weeks thereafter), T_5=Nemagon in post planting irrigation water at 18 iitres ha. once in 8 weeks, T_6=Nemagon in post planting irrigation water at 18 litres/ ha. 2 months and 4 months after planting., T_7=Enhanced application of FYM at 125·0 Q/ha., T_8=Raking up the soil 4 times before planting and T_9=EDB at 320 kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 4·6 m×4·6 m. (b) 3·7 m.×3·7 m. (v) 36 cm.×46 cm. (v) Yes.

4. GENERAL :

(i) Normal. (ii) No serious incidence of pests and diseases. (iii) Yield of chillies and nematode counts. (iv) (a) No. (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 75·3 Q/ha. (ii) 13·2 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of chillies in Q/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	66·8	91·9	79·4	72·3	68·8	67·8	77·5	79·1	75·2	74·6

Crop :- Chillies. **Ref :- T.N. 63(83).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'D'.**

Object :—To evolve a suitable control measure against fruit rot and die back of Chillies.

1. BASAL CONDITIONS :

(i) (a) Cumbu follow chillies. (b) Cumbu. (c) 124 Q/ha. of F.Y.M. and 22·5 Kg/ha. of N. (ii) Black soil. (iii) 12.11.1963. (iv) (a) 3 ploughings. (b) Planting the seedlings in the ridges. (c) N.A. (d) 61 cm.×46 cm. (e) 1. (v) 45 Kg/ha. of N+22·5 Kg/ha. of P_2O_5+11 Kg/ha. of K_2O. (vi) As per treatments. (vii) Irrigated. (viii) 5 weedings and 2 earthing up of ridges. (ix) 24 cm. (x) 2.3.64 to 22.5.64.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=Sattur Samba and V_2=B. 72 A.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 4 fungicidal treatments : C_0=Control, C_1=Fytolan 0·25%, C_2=Dithane Z-78 0·15% and C_3=Bordeaux Mixture 1%.

(2) 2 intervals of application of fungicides : I_1=Once in 10 days and I_2=Once in 20 days.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 8 sub-plots/main-plot. (b) 29·3 m.×4 6 m. (iii) 4. (iv) (a) and (b) 1·8 m×4·6. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Incidence of die back and percent of fruit rot and yield of chillies (iv) (a) 1963—only. (b) —(c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 14·6 Q/ha. (ii) (a) 10·3 Q/ha. (b) 3·6 Q/ha. (iii) Main effect of C is highly significant. (iv) Av. yield of chillies in Q/ha.

	C_0	C_1	C_2	C_3	I_1	I_2	Mean
V_1	17·2	16·5	14·7	8·9	13·8	14·8	14·3
V_2	18·8	15·5	14 9	10·5	15·7	14·1	14·9
Mean	18·0	16·0	14·8	9·7	14·8	14·5	14·6
I_1	18·0	16·3	15·3	9·5			
I_2	18·0	15·7	14·2	9.9			

C.D. for C marginal means=2·6 Q/ha.

Crop :- Chillies (*Main*). **Ref :- T.N. 62(171).**

Site :- Coimbatore (c.f.) **Type 'D'.**

Object :--To evolve suitable control measure against Anthracnose disease of Chillies.

1. BASAL CONDITIONS

(i) (a) Nil. (b) G.M. (c) Nil. (ii) Sandy loam. (iii) 14.5.1962. (iv) (a) 2 ploughings. (b) Hand sowing. (c) 5 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 70 Q/ha. of F.Y.M. (vi) Local round. (vii) Irrigated. (viii) 2 weedings and earthing up. (ix) N.A. (x) 26.8.62.

2. TREATMENTS :

8 fungicidal treatments : T_0=Control. T_1=Fytolan 0·3%—55 gm/10 litre of water. T_2=Shell Copper 0·3% at 55 gm./10 litres of water, T_3=Copper Sandoz 0·3% at 55 gm./10 litres. of water, T_4=Fungimar 0·3% at 55 gm./10 litres of water, T_5=Cupramar 0·3% at 55 gm/10 litres, T_6=Cuprous oxide 0·35% at 64 gm/10 litres of water and T_7= Bordeaux Mixture 0·3% at 55 gm. of lime+ 55 gm. of Cu. Sul./10 litres of water.

3 sprayings were given at 15 days intervals starting from one month after sowing @ 925 litres of spraying fluid/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 12·8 m.×4·3 m. (b) 12·2 m.×3·7m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Infection count and yield of chillies. (iv) (a) No. (b) to (c)— (v) to (vii) Nil.

5. RESULTS :

(i) 2453 Kg/ha. (ii) 507·5 Kg/ha. (iii) Treatment differenees are significant. (iv) Av. yield of chillies in Kg/ha.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	1906	2747	2859	2971	2298	2018	2186	2635

C.D.=746·3 Kg/ha.

Crop :- Chillies (*Main*). **Ref :- T.N. 63(231).**

Site :- Rajennagar, Coimbatore. **Type :- 'D'.**

Object :—To test the efficacy of various spray fingicides in the control of Chillies fruit rot.

1. BASAL CONDITIONS

(i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 4.4.63. (iv) (a) 2 ploughings. (b) Hand sowing (c) 5 Kg/ha. (d) 15 cm.×15 cm. (e) 2. (v) 75 Q/ha. of F.Y.M. (vi) Pollachi round. (vii) Irrigated. (viii) 2 weedings and earthing up. (ix) N.A. (x) 29.6.63 to 4.8.63.

2. TREATMENTS :

8 fungicidal treatments: T_0=Control,T_1=Fytolan 0·3% at 55 gm./18 litres of water, at T_2=Shell copper 0·3% 55 gm./18 litres of water, T_3=Copper Sandoz 0·3% at 55 gm./18 litres of water, T_4=Fungimar 0·3% at 55 gm./18 litres of water, T_5=Cupramar 0·3% at 55 gm./18 litres of water, T_6=Cuprous oxide 35% at 64 gm./18 litres and T_7=Bordeaux mixture 3% (55 gm. each/18 litres).

4 sprayings were given on 31.5.63, 23.6.63, 28.7.63 and 26 8.63 at 925 litres of spraying fluid/ha.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 62(171) on page 603.

5. RESULTS :

(i) 5704 Kg/ha. (ii) 453·0 Kg/ha. (ii) Treatment differences are not significant. (iv) Av. yield of chillies in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	4541	6054	5998	6167	5606	5550	5662	6054

Crop :- Chillies (*Main*). **Ref :- T.N. 65(35).**

Site :- Rajennagar Coimbatore (c.l.). **Type :- 'D'.**

Object : — To study the efficacy of various spray fungicides in the control of Chillies fruit rot.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cholam*. (c) 50 Q/ha. of F.Y.M. (ii) Red sandy loam. (iii) 2.8.65. (iv) (a) 2 ploughings. (b) 4 Transplanting. (c) 2 Kg/ha. (d) 12 cm.×10 cm. (e) 2. (v) 70 Q/ha. of F.Y.M. (vi) Local round. (vii) Irrigated. (viii) 2 weedings and earthing up. (ix) N.A. (x) 21.12,65 to 2.2.66.

2. TREATMENTS :

7 fungicidel treatments: T_0=Control, T_1=Fytolan 0·30% at 55 gm./10 litres of water, T_2=Shell Copper 0·30% at 55 gm./10 litres of water, T_3=Fungimar 0·30% 55 gm./10 litres of water, T_4=Cupramar 0·30% at55 gm./10 litres of water, T_5=Cuprous oxide 0·35% at 64 gm/10 litres of water and T_6=Bordeaux Mixture 30% (55 gm. of lime+55 gm. of cu. Sul. per 10 litres).

3 sprayings were given @ 925 litres/ha. at 15 days intervel starting from 2 months after.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4, (iv) (a) 5·6 m.×4·1 m. (b) 6·1 m.×3·7 m. (v) 24 cm.×20 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study (iii) Disease incidence and yield of chillies. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of chillies

(i) 3139 Kg/ha. (ii) 161·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of chillies in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	2803	3475	3251	3027	2915	3139	3363

C.D.=240·5 Kg/ha.

Disease incidence

(i) 36·0 degrees. (ii) 2·4 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of fruit rot incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean incidence	39·8	34·8	35·1	36·3	36·6	35·7	34·1

C.D.=3·6 degrees.

Crop :- Digitalis Purpurea. **Ref :- T.N. 63(211), 64(216).**

Site :- Govt. Cinchona plantations, Dodabitta, Ootacamund. **Type :- 'M'.**

Object :— To determine the effect of N, P and K on the yield, potency and glycoside content of leaves and the economic life of the crop.

1. BASAL CONDITIONS :

(i) Garden land. (ii) Black laterite. (iii) Seed propagation. (iv) Digitalis purpurea. (v) 15.8.63/21.11.63, 60 cm.×45 cm. (vi) 3 months. (vii) 11200 Kg/ha. of composted C.M. (viii) Forking and ridging. (ix) Nil. (x) Unirrigated. (xi) 115 cm., 213 cm. (xii) May 1964; April, 1965.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 2 levels of N as A/S : N_0=0 and N_1=28 Kg/ha.
(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44 Kg/ha.
(3) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=44 Kg/ha.

In first year Super is given in two equal doses at 30 and and 60 days after planting. A/S and Pot. Sul. were given in two doses : half after 45 days of planting and the other half in early October.

In the second year Super is applied in one dose in May. A/S and Pot. Sul. are applied in two equal doses : half 15 days after the application of Super and the other half in early October.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. and (b) 90. (v) One row of plants alround (46 plants). (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Weight of leaves. (iv) 1963—64. (v) N.A. (vi) Nil. (vii) Nil. (viii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

(i) 862 Kg/ha. (ii) 260·0 Kg/ha. (based on 7 d.f. made up of various Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. weight of leaves in Kg/ha.

	N_0	N_1	P_0	P_1	Mean
K_0	911	801	861	851	856
K_1	869	867	847	889	868
Mean	890	834	854	870	862
P_0	897	811			
P_1	883	857			

Years	N_0	N_1	Sig.	P_0	P_1	Sig.	K_0	K_1	Sig.	G.M.	S.E./plot
1963	1170	1100	N.S.	1112	1158	N.S.	1115	1155	N.S.	1135	230·4
1964	611	567	N.S.	596	567	N.S.	597	581	N.S.	589	122·8
Pooled	890	833	N.S.	854	870	N.S.	856	868	N.S.	862	260·0

Crop :- Daturia Innoxia (*Summer*). **Ref :- T.N. 64(197).**

Site :- Govt. Cinchona plantations, Anamallai. **Type :- 'M'.**

Object :— To evaluate the manurial requirements of Daturia Innoxia.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Daturia innoxia. (c) 1 tonne/ha. of C.M. (ii) Black lateritic soil. (iii) 23.1.1964/Nil. (iv) (a) 1 forking and ridging. (b) Dibbling in lines. (c) 150 gm /ha. (d) 90 cm.×30 cm. (e) One. (v) 1 tonne/ha. of C.M. (vi) Daturia innoxia. (vii) Unirrigated. (viii) Weeding, earthing up. (ix) 103 cm. (x) 28.5.64.

2. TREAT MENTS :

All combinations of (1) and (2).

(1) 2 levels of lime : $L_0=0$ and $L_1=7$ tonnes/ha.

(2) 2 levels of manure : $M_0=0$ and $M_1=50$ Kg/ha. of N as A/S+35 Kg/ha. of P_2O_5 as Super+30 Kg/ha. of K_2O as Mur. Pot.

Line was applied to raise the PH. of the soil by one unit.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 5·4 m.×1·5 m. (b) 3·6 m.×0·9 m. (v) 90 cm.× 30 cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Dry weight of whole plant materials, dry weight of fruit seed and pericarp. (iv) (a) No. (b)—(c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 287 Kg/ha. (ii) 146·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of whole plant material (dry weight) in Kg/ha.

	M_0	M_1	Mean
L_0	141	478	310
L_1	230	297	263
Mean	186	387	287

Crop :- Banana.
Ref :- T.N. 63(191).
Site :- Central Banana Res. Stn., Aduthurai.
Type :- 'M'.

Object :— To study the optimum manurial dose for perennial Bananas.

1. BASAL CONDITIONS :

(i) (a) The area was under banana previously 3 to 4 diggings were given to the crop. Pruning of suckers and dried leaves were done. Manure applied was 12 Kg/pit of compost. (ii) Clayey loam. (iii) By planting suckers. (iv) Poovam. (v) Planted on 28.8.63 in pits at 2·4 m.×2·4 m. spacing. (vi) 4 months. (vii) 12Kg/pits of compost before planting. (viii) 5 diggings with mummuthy (2 deep 3 surface), desuckering and periodical weedings. (ix) Nil. (x) Unirrigated. (xi) 157 cm. (xii) August 1964 onwards.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 3 levels of N as A/S : $N_0=0$, $N_1=113·4$ and $N_2=226$ gm./clump.
(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=113·4$ and $P_2=226·8$ gm./clump.
(3) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=340·2$ and $K_2=680·4$ gm/clump.

Fertilizers were applied in the soil two times during the experimental to soil moisture conditions.

3. DESIGN :

(i) 3^3 partially confd. (ii) (a) 9 plots/block and 3 blocks/replication (b) 109·7 m.×9·8 m. (iii) 2. (iv) 20 (v) One row all round (14 guard plants). (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible. (iii) Yield of bananas, no. of leaves, height of plants and growth measurements. (iv) 1963-1965. (v) to (vii) Nil. (viii) Expt. for 1964 and 1965 were damaged by cyclone before the harvest of crop.

5. RESULTS :

(i) 152·9 Q/ha. (ii) 17·6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Q/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	167·1	152·3	144·7	153·5	150·8	159·9	154·7
N_1	156·3	143·9	143·7	147·2	150·0	146·7	148·0
N_2	157·1	155·6	155·1	140·9	163·8	163·1	155·9
Mean	160·2	150·6	147·8	147·2	154·9	156·5	152·9
K_0	153·0	143·8	144·9				
K_1	164·5	160·4	139·7				
K_2	163·0	147·7	158·9				

Crop :- Banana. **Ref :- T.N. 64(213).**

Site :- The wet land Banana Res. Sub-Stn., Uyyakondan, Thirumalai, Triuchirapalli. **Type :- 'M'.**

Object :—To determine the optimum nutritional requirements of Poovan banana under the intensive system of wet-land culture for securing higher yield.

1. BASAL CONDITIONS :

(i) This is a wet land area where paddy and banana are grown in rotation. The land was newly acquired for the Stn. and hence details of manuring and other operations are N.A. (ii) Clay soils. (iii) By transplanting the sword suckers. (iv) Poovam. (v) 3.3.64 suckers were planted at a spacing of 2·1 m. ×2·1 m. in pits just enongh to hold the corms. (vi) 3 months. (vii) Nil. (viii) 4 to 5 diggings by mummuthy desuckering 8 times and about 5 prunings. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) April 1965 (on different dates).

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : $N_0=0$, $N_1=113·4$ and $N_2=226·8$ gm. per pit.
(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=113·4$ and $P_2=226·8$ gm. per pit.
(3) 3 levels of K_2O : $K_0=0$, $K_1=340·2$ and $K_2=680·4$ gm. per pit.

N was applied as A/S and G.N.C. on the basis of N content in 50 : 50 proportion in two equal doses in the 4th and 7th months after planting. P_2O_5 as Super and K_2O as Mur. Pot. were also applied in two equal doses in the 4th and 7th months after planting. All these fertilisers were applied in the basins alround the plants.

3. DESIGN :

(i) 3^3 partially confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) 25·6 m.×32·0 m. (iii) 3. (iv) 20. (v) one row alround the plot (14 guard row plants). (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of bunches. (iv) 1964--67 (3 generations). (v) to (viii) Nil.

5. RESULTS ;

(i) 334·3 Q/ha. (ii) 26·5 Q/ha. (iii) Only N effect is highly significant. (iv) Av. yield of banana in Q/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	220·4	229·9	213·8	216·2	232·8	215·1	221·4
N_1	375·6	377·3	398·3	389·8	379·3	382·1	383·7
N_2	397·8	393·0	402·2	382·7	405·4	404·9	397·7
Mean	331·3	333·4	338·1	329·6	339·2	334·0	334·3
K_0	338·0	332·9	317·8				
K_1	329·5	342·2	345·8				
K_2	326·3	325·1	350·7				

C.D. for N marginal means=10·3 Q/ha.

Crop :- Banana. **Ref :- T.N. 59(106).**

Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'C'.**

Object :—To compare the whole corms and bits of corms both obtained from mother as well as daughter suckers for exploring the possibilities for using them as planting material.

1. BASAL CONDITIONS :

(i) Area under banana previously. (ii) Clayey loam. (iii) By planting suckers. (iv) Rasthali and Mauritius. (v) Planted on 27.1.59 in pits at 2·4 m.×2·4 m. spacing. (vi) 4 months. (vii) 12 Kg/pit of C.M. before planting. (viii) 5 diggings with mummuthy, fortnightly desuckering and periodical weeding. (ix) Nil (x) Irrigated. (xi) 70 cm. (xii) January, 60 and onwards.

2. TREATMENTS :

4 planting materials : T_1=Planting whole mother corm, T_2=Planting bits from mother corm, T_3=Planting whole daughter corm, and T_4=Planting bits from daughter corm.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 19·5 m.×14·6 m. (iii) 6. (iv) 6 experimental plants. (v) 1 guard row alround the experimental area. No guard row between plots. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of bananas, no. of hands and fruits in the bunch, height and girth of plants and no. of leaves. (iv) (a) 1959 only. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Rasthali variety

(i) 172·1 Q/ha. (ii) 17·6 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	180·7	162 0	175·8	170 0

Mauritius variety

(i) 149·6 Q/ha. (ii) 18·3 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Q/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	139·5	153·2	151·9	153·6

Crop :- Banana. **Ref :- T.N. 59(115).**
Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :—To find out suitable plantation practices for taking the crop before November to obviate the effect of cyclone.

1. BASAL CONDITIONS :

(i) The area was under Banana previously. Details of manuring and other operations are not available. (ii) Clayey loam. (iii) By planting suckers; (iv) Poovam. (v) As per treatments. Planting suekers in pits ; As per treatments. (vi) 4 months old suckers. (vii) 12 Kg compost per pit before planting. (viii) 5 diggings, desuckering and occasional weeding. (ix) Nil. (x) Unirrigated. (xi) 160 cm. (xii) November, 1960 and onwards.

2. TREATMENTS :

All combinations of (1), (2), (3), (4) and (5)

(1) 2 seasons of planting : P_1=August planting and P_2=September planting (exact dates—N.A).
(2) 2 levels of N : N_1=0·23 and N_2=0·34 Kg/clump.
(3) 2 periods of application of N : A_1=2 applications during crop period and A_2=3 applications during crop period.
(4) 2 spacings : S_1=2·13 m.×2·13 m. and S_2=2·44 m.×2·44 m.
(5) 2 depths of planting: D_1=Planting 30 cm. deep, and D_2=Planting 46 cm. deep.

N applied as A/S in the soil after planting in two or three applications as the case may be according to treatment (3) taking into account the soil moisture conditions at the time of application. Details of the exact times of application are not available.

3. DESIGN :

(i) 2^5 Fact. confd. (PNA, PSD and NASD confounded). (ii) (a) 8 plots/block; 4 blocks/replication. (b) 24·4 m.×39·0 m. (iii) 1. (iv) 20 (6 experimental plants and 14 guard row plants). (v) 1 guard row alround the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield at the end of November and at final harvest and the growth measurements of plants. (iv) (a) 1959 only. (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 168·6 Q/ha. (ii) 18·4 Q/ha. (iii) Main effect of S is highly significant. (iv) Mean and differential response in Q/ha.

	Mean Response	P		N		A		S		D	
		Abs.	Pres.	Abs.	Pres.	Abs.	Pres,	Abs.	Pres.	Abs.	Pres.
P	6·7	—	—	—5·4	7·9	2·2	11·1	10·1	3·2	11·3	2·0
N	—7·5	—8·7	—6·3	—	—	—2·2	—12·8	—10·6	—4·4	—2·6	—12·4
A	1·4	—3·0	5·9	6·8	—3·9	—	—	—4·4	7·2	—0·8	3·7
S	—46·7	—43·2	—50·1	—49·8	—43·6	—52·5	—40·9	—	—	—47·2	—46·1
D	—5·3	—0·7	—10·0	—0·4	—10·2	—7·6	—3·1	—5·9	—4·8	—	—

C.D. for S mean response=14·0 Q/ha.

———

Crop :- Banana. **Ref :- T.N. 61(97), 62(136).**

Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :—To study the influence of desuckering, spacing and manuring on the yield of Poovam Banana.

1. BASAL CONDITIONS :

(i) The land was under Banana previously. During the crop season cultural operations like digging, desuckering, pruning of dried leaves etc. were done. (ii) Clayey loam. (iii) Planting suckers. (iv) Poovam. (v) Panting on 23.8.1961 in pits at spacing as per treatments. (vi) 4 months. (vii) 12 Kg/pit of compost. (viii) 1 deep and 4 surface diggings with mummuthy, desuckering and occasional weeding. (ix) Nil. (x) Unirrigated. (xi) 152 cm. for 61(97); 124 cm. for 62(136). (xii) November, 1962 onwards; October, 62 onwards.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 desuckering practices : D_1=Allowing the first produced sucker to grow and D_2=Allowing the sucker that emerges after the flowering of the parent plant to grow.

(2) 2 spacings : S_1=2·74 m.×2·74 m. and S_2=3·05 m.×3·05 m.

(3) 2 levels of N as A/S : N_1=227 and N_2=340 gm/clump.

A/S was applied in the soil two times during the experimental year according to soil moisure conditions.

3. DESIGN :

(i) 2^3 Fact. in R.B.D. (ii) (a) 8. (b) 61·0 m.×30·5 m. (iii) 4. (iv) 9. (v) 1 row alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible, (iii) Fruit yield. (iv) (a) 1961 – 62. (b) N.A. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments × years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

61(97)

(i) 105·4 Q/ha. (ii) 7·9 Q/ha. (iii) Main effects of S and D are highly significant. (iv) Av. yield of fruits in Q/ha.

	S_1	S_2	N_1	N_2	Mean
D_1	109·3	90·8	102·9	97·2	100·1
D_2	122·8	98·8	112·3	109·3	110·8
Mean	116·1	94·3	107·6	103·2	105·4
N_1	117·6	97·6			
N_2	114·5	92·0			

C.D. for S or D marginal means=4·1 Q/ha.

62(136)

(i) 169·0 Q/ha. (ii) 15·0 Q/ha. (iii) Main effect of D and S are highly significant. (iv) Av. yield of fruits in Q/ha.

	S_1	S_2	N_1	N_2	Mean
D_1	189·7	164·0	178·2	175·5	176·9
D_2	183·1	139·2	160·5	161·8	161·8
Mean	186·4	151·6	169·4	168·6	169·0
N_1	185·3	153·4			
N_2	187·5	149·8			

C.D. for D or S marginal means=7·8 Q/ha.

Crop :- Banana. **Ref :- T.N. 63(189).**

Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :—To study the influence of cultural practices and manuring on the yield of Banana.

1. BASAL CONDITIONS :

(i) The land was under banana previously. During the crop season cultural operations like digging, desuckering and pruning of dried leaves etc. were done. (ii) Clayey loam. (iii) By planting suckers. (iv) Poovam. (v) Planted on 23.8.61 in pits at spacing as per treatments. (vi) 4 months. (vii) 12 Kg/pit of compost. (viii) 1 deep and 4 surface diggings with mummuthy, desuckering and occasional weeding. (ix) Nil. (x) Unirrigated. (xi) 132 cm. (xii) Nov., 64 onwards.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 desuckering practices : D_1=Allowing the first produced sucker to grow and D_2=Allowing the sucker that emerges after the flowering of the parent plant to grow.

(2) 2 spacings : S_1=2 7 m.×2·7 m. and S_2=3·1 m.×3·1 m.

(3) 2 levels of manuring : M_1=113·4 gm./clump of N+113·4 gm/clump of P_2O_5+340·2 gm/clump of K_2O and M_2=$1M_1$.

N was applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot. to the soil two times during the experimental year according to soil moisture conditions.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) 61·0 m.×30·5 m. (iii) 4. (iv) 25 (9 experimental plants and 16 guard plants). (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible. (iii) Yield of bananas, height of plants, no. of leaves and growth measurements. (iv) (a) 1963-contd. (b) and (c) Nil. (v) (a) Nil. (b) –. (vi) Nil. (vii) Expt. for 1964 was vitiated due to cyclone in 1965.

5. RESULTS :

(i) 120·6 Q/ha. (ii) 14·6 Q/ha. (iii) Main effects of D and S are highly significant. (iv) Av. yield of fruits in Q/ha.

	S_1	S_2	M_1	M_2	Mean
D_1	148·2	117·4	137·7	127·8	132·8
D_2	121·9	95·1	106·8	110·1	108·5
Mean	135·0	106·2	122·3	118·9	120·6
M_1	138·3	106·2			
M_2	131·7	106·2			

C.D. for D or S marginal means=10·7 Q/ha.

Crop :- Banana. **Ref :- T.N. 62(137), 63(190).**

Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'CM'.**

Object :—To arrive at an optimum desuckering practice in the perennial banana groves.

1. BASAL CONDITIONS :

(i) The area was under banana previously. The crop had three to four diggings, and pruning of suckers and dried leaves were done. (ii) Clayey loam. (iii) By planting suckers. (iv) Poovam. (v) Planted on 14.11.62 in pits at 2·4 m.×2·4 m. spacing. (vi) 4 months. (vii) 12 Kg/pit of well rotton compost. (viii) 6 diggings with mummuthy, desuckering and periodical weeding. (ix) Nil. (x) Unirrigated. (xi) 164 cm. in 62(137) and 111 cm. in 63(190). (xii) December, 62. onwords.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 desuckering practices : D_1=Allowing only the first sucker to grow, D_2=Allowing the first and the third suckers to grow, D_3=Allowing the first sucker emerging after the flowering of the parent plant to grow and D_4=Allowing all the suckers to grow.

(2) 2 levels of manuring : M_1=113·4 gm./clump of N+170·1 gm./clump of P_2O_5+340·2 gm./clump of K_2O and M_2=$2M_1$.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot. applied to soil according to soil moisture conditions two times in a year.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) 24·4 m.×39·0 m. (iii) 4. (iv) 6. (v) One row alround (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Negligible. (iii) Yield, height of plants and no. of leaves. (iv) (a) 1952-contd. (b) and (c) Nil. (v) and (vi) Nil. (vii) Expt. for 1964 vitiated due to cyclone.

5. RESULTS :

62(137)

(i) 148·3 Q/ha. (ii) 13·1 Q/ha. (iii) Main effect of D alone is significant. (iv) Av. yield of fruits in Q/ha.

	D_1	D_2	D_3	D_4	Mean
M_1	140·7	151·4	164·4	135·8	148·1
M_2	144·4	161.6	145·9	142·2	148 5
Mean	142·6	156·5	155 2	139·0	148.3

C.D. for D marginal means=13·6 Q/ha.

63(190)

(i) 166·8 Q/ha. (ii) 26·8 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Q/ha.

	D_1	D_2	D_3	D_4	Mean
M_1	181·5	153·5	194·3	153·2	170·9
M_2	168·2	168·9	166·3	147·9	162·8
Mean	174·9	161·2	180·3	151·0	168·0

Crop :- Banana. **Ref :- T.N. 64(191).**

Site :- Central Banana Res. Stn., Aduthurai. **Type :- 'CMV'.**

Object :—To find out the effect of digging and time of application of manures in the yield of Banana.

1. BASAL CONDITIONS :

(i) The area was under banana previously. During the crop season cultural operations like diggings and pruning of suckers and dried leaves were done. Manure applied was 12 Kg. compost per pit. (ii) (a) Clayey loam. (iii) By planting suckers. (iv) As per treatments. (v) 22, 25 1.64. Planted on in pets at a spacing of 2·4 m.×2·4 m. (vi) 4 months. (vii) 12 Kg/pit of compost. (viii) Diggings as per treatments with mummutty, prunning of suckers and dried leaves and occasional weeding. (ix) Nil. (x) Unirrigated. (xi) 77 cm. (xii) January, 1965 onwards.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V_1-Poovam and V_2-Monthan.

(2) 3 intervals for digging : D_1=2, D_2=3 and D_3=4 months.

Sub-plot treatments :

3 manuring treatments : T_1=Manuring twice a year at 283·5 gm./clump of N+510·3 gm./clump of P_2O_5+340·2 gm./clump of K_2O, T_2=Manuring thrice a year at 184·3 gm./clump of N+340·2 gm./clump of P_2O_5 at 226·8 gm./clump of K_2O and T_3= Manuring four times a year at 141·8 gm./clump of N+255·2 gm./clump of P_2O_5+170·1 gm/clump of K_2O.

N applied as A/S, P_2O_5 as super and K_2O as Mur. Pot. in the soil according to soil moisture conditions.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) 36·6 m.×58·5 m. (iii) 4. (iv) 20 (6 experimental plants+14 guard plants). (v) One row alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of bananas, number of leaves, height of plants and other growth measurements. (iv) (a) 1964-contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 167·1 Q/ha. (ii) (a) 30·8 Q/ha. (b) 24·3 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Q/ha.

	D_1	D_2	D_3	T_1	T_2	T_3	Mean
V_1	174·6	168·0	173·2	167·9	174·3	173·6	171·9
V_2	168·7	153·1	164·7	166·4	159·2	160·9	162·2
Mean	171·7	160·6	169·0	167·1	166·8	167·8	167·1
T_1	171·3	159·8	170·3				
T_2	173·6	157·9	168·8				
T_3	170·2	164·0	167·8				

Crop :- Banana. **Ref :- T.N. 64(214).**

Site :- The Wetland Banana Res. Sub-Stn., Uyyakondan Thirumalai, Tiruchirapalli. **Type :- 'CMV'.**

Object :—To find out the optimum spacing and cultural practices such as digging and manuring for Poovam and Monthan varieties.

1. BASAL CONDITIONS :

(i) This is a wet land area where paddy and banana are grown in rotation. The land was newly acquired by the Res. Stn. Details of manuring and other operations N.A. (ii) Clay soils. (iii) By planting sword suckers. (iv) As per treatments. (v) 8.4 64 suckers were planted in pits just enough to hold the corms-spacing as per treatments. (vi) 3 months. (vii) Nil. (viii) Digging with mummuthy (as per treatments), desuckering about 8 times and 4 to 5 prunings. (ix) Nil. (x) Irrigated by chemical water from the adjoining river according to soil moisture conditions without allowing water stagnation. (xi) N.A. (xii) April, 1965.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(2) 2 varieties of banana : V_1=Poovam and V_2=Monthan.
(2) 2 spacings for planting : S_1=2·1 m.×2·1 m. and S_2=2·4 m.×2·4 m.
(3) 2 schedules of manuring : M_1=113·4 gm. N+113·4 gm. of P_2O_5+340·2 gm. of K_2O per pit and M_2=226·8 gm. of N+226·8 gm. of P_2O_5+680·4 gm. of K_2O per pit.

N was applied as A/S and G.N.C. on the basis of N content in 50 : 50 proportion, P_2O_5 as Super and K_2O as Mur. Pot. All these fertilizers were applied in the 4th and 7th months after planting in two equal doses in the basins around the plants.

(4) 2 schedules of digging : D_1=Four times a year and D_1=Six times a year.

In both first digging was given just after planting. In D_1 subsequent diggings were given at 3 months interval and D_2 at 2 months interval.)

3. DESIGN :

(i) 2^4 Fact. confd. (ii) (a) 8 plots/block ; 2 blocks/replication. (b) 48 8 m.×24·4 metres. (iii) 2. (iv) 25 (9 expt. plants and 16 guard row plants). (v) One row alround (16 guard row plants). (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of bunches. (iv) (a) 1964 to 1967 (3 generations). (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 301·7 Q/ha. (ii) 47·7 Q/ha. (iii) Only the main effect of S is significant. (iv) Mean and differential response in Q/ha.

	Mean response	V		S		M		D	
		Abs.	Pres.	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
V	—10·2	—	—	—11·0	—9·4	+2·9	23·3	—24·7	+4·3
S	—41·4	—42·2	—40·6	—	—	—46·4	—36·4	—54·7	28·1
M	+22·6	35·6	+9·5	+17·6	+27·6	—	—	+21·3	+23·9
D	—18·6	—33·1	—4·1	31·9	—5·3	—19·9	17·3	—	—

C.D. for S mean response=36·2 Q/ha.

Crop :- Grapes.

Ref :- T.N. 61(108), 62(148), 63(203), 64(204), 65(12).

Site :- Fruit Res. Stn., Periyakulam.

Type :- 'M'.

Object : To study the effect of manures on the yield and quantity of fruits.

1. BASAL CONDITIONS :

(i) Dry land (Private). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) Planted on 25.5.59 with spacing of 7·6 m.×3·8 m. (vi) 6 months. (vii) 400 Q/ha. of C.M.+450 Q/ha. of G.L. (viii) 2 diggings and weedings. (ix) Nil. (x) Irrigated. (xi) 71 cm. ; 66 cm. ; 32 cm. ; 37 cm. ; 55 cm. (xii) 3.4.61 ; 8 to 11.4.62 ; 27.3.63 to 11.4.63 ; 18.4.64 to 1.5 64 ; 6 to 13.4.65.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : N_0=0, N_1=0·45 and N_2=0·90 Kg/vine.

(2) 3 levels of Super : P_0=0, P_1=0·90 and P_2=1·80 Kg/vine.

(3) 3 levels of Potash : K_0=0, K_1=1·35 and K_2=2·70 Kg/vine.

N as A/S, P_2O_5 as Super applied twice a year in June and December immediately after the seasonal prunings.

K_2O is applied as Mur. Pot. 70 days after the date of commencement of flowering in each of the cropping seasons.

3. DESIGN :

(i) 3^3 partially confd. (NPK). (ii) (a) 9 plots/blocks ; 3 blocks/replication. (b) N.A. (iii) 1. (iv) 4 vines/plot. (v) External (7·6 m.) and internal (3·8 m.) rows kept. (vi) Yes.

4. GENERAL :

(i) Very poor for 65(12) ; Good for others. (ii) Flea-beetle was controlled by spraying D.D.T. 0·1% and Folidol 0·3 % ; Downy mildew controlled by spraying Bordeaux Mixture—1%. (iii) Yield of grapes. (iv) (a) 1961-contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

61(108)

(i) 497 Kg/ha. (ii) 316·1 Kg/ha. (iii) None of the effects is significant. (iv) yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
P_0	314	291	430	268	430	337	345
P_1	349	674	732	395	442	918	585
P_2	616	488	581	476	593	616	562
Mean	426	484	581	380	488	624	497
K_0	442	395	302				
K_1	291	593	581				
K_2	546	465	860				

62(148)

(i) 1119 Kg/ha. (ii) 935·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	718	1148	1191	703	1292	1062	1019
N_1	1033	990	660	1463	502	718	894
N_2	1693	1837	804	861	1866	1607	1445
Mean	1148	1325	885	1009	1220	1129	1119
K_0	1434	990	603				
K_1	431	1966	1263				
K_2	1579	1019	789				

63(203)

(i) 9992 Kg/ha. (ii) 1121·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	5438	9672	8266	7060	5941	10375	7792
N_1	15712	8569	9313	9959	12944	10691	11198
N_2	9902	11982	11078	10547	10806	11609	10987
Mean	10351	10074	9552	9189	9897	10892	9922
K_0	10145	9528	7893				
K_1	10790	9028	9873				
K_2	10217	11667	10891				

64(204)

(i) 10340 Kg/ha. (ii) 4565·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	8495	10748	10748	9615	10074	10302	9997
N_1	10992	8682	7462	9485	9155	8496	9045
N_2	11954	13546	10432	11322	12456	12154	11977
Mean	10480	10992	9547	10141	10562	10317	10340
K_0	10308	10819	8295				
K_1	8710	10849	12126				
K_2	11423	11308	8221				

65(12)

(i) 95 Kg/ha. (ii) 158·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	92	367	74	175	83	276	178
N_1	26	17	126	118	17	34	56
N_2	17	83	55	46	26	83	52
Mean	45	156	85	113	42	131	95
K_0	92	100	146				
K_1	17	26	83				
K_2	26	342	26				

Crop :- Grapes. **Ref :- T.N. 61(109), 62(149), 63(204).**

Site :- Fruit Res. Stn., Periyakulam. **Type :- 'M'.**

Object :— To study the effect of manures on yield and quality of fruits.

1. BASAL CONDITIONS :

(i) Dry lands (private). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) Planted on 25.5.59 with spacing 7·6 m.×3·8 m. (vi) 6 months. (vii) 400 Q/ha. of C.M. and 450 Q/ha. of G.L. (viii) 2 diggings, weeding etc. (ix) Nil. (x) Irrigated. (xi) 29 cm. ; 10 cm. ; 16 cm. (xii) 19.9.61 ; 5 to 11.9.62 ; 11 to 23.9.63.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 61 (108), 62 (148), 63 (203), 64 (204), 65 (12) conducted at Periyakulam on page .

4. GENERAL :

(i) Good. (ii) Flea beetle controlled by spraying D.D.T. 0·1% and Folidol 0·025% ; Downy mildew controlled by spraying Bord. Mixture 1%. (iii) Yield of grapes. (iv) (a) 1961-contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

61(109)

(i) 1072 Kg/ha. (ii) 778·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	373	1205	775	401	689	1263	784
N_1	459	890	2784	1464	488	2181	1378
N_2	1435	1292	431	517	1321	1320	1053
Mean	756	1129	1330	794	833	1588	1072
K_0	431	1033	918				
K_1	488	1120	890				
K_2	1348	1234	2182				

62(149)

(i) 2407 Kg/ha. (ii) 1597·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1263	2325	2468	1693	1593	2770	2019
N_1	2640	2268	2302	2239	2359	2612	2403
N_2	3100	3315	1980	2626	3014	2755	2798
Mean	2334	2636	2250	2186	2322	2712	2407
K_0	1880	2655	2023				
K_1	1894	2813	2259				
K_2	3229	2440	2468				

63(204)

(i) 2390 Kg/ha. (ii) 1121·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grapes in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1822	2569	1665	2770	1607	1679	2019
N_1	2239	2224	2483	2038	2712	2196	2315
N_2	2583	4664	1263	3143	3157	2210	2837
Mean	2215	3152	1804	2650	2492	2028	2390
K_0	2052	4118	1781				
K_1	2526	2468	2482				
K_2	2066	2871	1148				

Crop :- Grapes.

Ref :- T.N. 60(111), 61(105), 62(145), 63(200).

Site :- Fruit Res. Stn.,
Periyakulam.

Type :- 'C'.

Object :— To determine the most suitable and economic method of training the Grape vine.

1. BASAL CONDITIONS :

(i) Dry lands (Private gardens). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) 19.1.59 ; spacings : as per treatments. (vi) 6 months. (vii) The pits were manured with 135 Kg/pit of F.Y.M. (viii) Routine cultural operations like digging and weeding. (ix) *Sanhemp* was raised as inter-crop and incorporated in *situ* (x) Irrigated. (xi) 26 cm. ; 28 cm. ; 29 cm. ; 22 cm. (xii) 23.9.60, 19.9.61, 25.10.62 to 1.11.62, 23 to 26.9.63.

2. TREATMENTS :

3 cuttural treatments : C_1=Head System –1·9 m.×1·9 m. spacing and 45 vines per 11.4 m.×19·0 m plot, C_2=Double horizontal cordon Systm – 3·8 m.×3·8 m. spacing and 15 vines per plot and C_3=Pandal system 7·6 m.×3·8 m spacing and 9 vines per plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) As per treatments. (v) Only external guard row. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Flea beetle, anthrocnosis disease, downy mildew and powdry mildew controlled by spraying D.D.T. 0·1%, Folidol 0·025%, Bordeaux Mixture at 1% and Wettable Sulphur 0·1%. (iii) Yield of grapes. (iv) (a) 1960-contd. (b) and (c) No. (v) to(vii) Nil.

5. RESULTS :

60(111)

(i) 454 Kglha. (ii) 286·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	727	182	453

C.D.=306·9 Kg/ha.

61(105)

(i) 845 Kg/ha. (ii) 265·2 Kg/ha. (iii) Treatment differences are highiy significant. (iv) Av. yield of grapes in Kg/ha

Treatment	C_1	C_2	C_3
Av. yield	233	293	2008

C.D.=284·4 Kg/ha.

62(145)

(i) 4804 Kg/ha. (ii) 1936·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	5672	4458	4283

63(200)

(i) 789 Kg/ha. (ii) 509·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	465	812	1091

Crop :- Grapes. **Ref :- T.N. 61(104), 62(144), 63(199), 64 (199), 65(11).**

Site :- Fruit Res. Stn., Periyakulam. **Type :- 'C'.**

Object :— To determine the most suitable and economic method of training the Grape vine.

1. BASAL CONDITIONS :

(i) Dry land (Private gardens). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) 19.1 59 ; spacings: as per treatments. (vi) 6 months. (vii) The pits were manured with F.Y.M. at 135 Kg/pit. (viii) Routine cultural operations like digging, weeding, manuring etc. (ix) *Sanhemp* was raised as inter-crop and incorporated in *situ*. (x) Irrigated. (xi) 40 cm. ; 67 cm. 30 cm. ; 37 cm. ; 49 cm. (xii) 4.4.61 ; 8.4.62 ; Last week of April, 1963 ; 9. to 19.4.64 ; 9 to 14.4.65.

2. TREATMENTS to 4. GENERAL :

Same as in expt. No. T.N. 60 (111), 61(105), 62(145), 63(200) conducted at Periyakulam on page 618.

5. RESULTS :

61(104)

(i) 2827 Kg/ha. (ii) 1342·6 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	4539	1552	2390

C:D.=1440·0 Kg/ha.

62(144)

(i) 3686 Kg/ha. (ii) 1239·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	3735	2856	4466

63(199)

(i) 6001 Kg/ha. (ii) 3274·7 Kg/ha. (iii) Treatment differences ase not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	6212	5161	6631

64(199)

(i) 3590 Kg/ha. (ii) 1108·7 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grapes in Kg/ha,

Treatment	C_1	C_2	C_3
Av. yield	2494	4177	4099

C.D.=1189 1 Kg/ha.

65(11)

(i) 1672 Kg/ha. (ii) 1190·0 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	C_1	C_2	C_3
Av. yield	654	2021	2341

C.D.=1276·2 Kg/ha.

Crop :- Grapes.

Ref :- T.N. 60(112), 61(106), 62(146), 63(201), 64(203).

Site :- Fruit Res. Stn., Periyakulam.

Type :- 'I'.

Object :— To study the effect of different irrigational treatments on fruit set, yield and quality of fruits.

1. BASAL CONDITIONS :

(i) Dry land (Private). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) Planted on 28.12.58 with 7·6 m. × 3·8 m. spacing and with Pandal system. (vi) 6 months. (vii) Pits were filled with compost and top soil. (viii) Routine cultural operations like digging and weeding. (ix) Nil. (x) As per treatments. (xi) 22 cm. ; 7 cm. ; 64 cm. ; 32 cm. ; 37 cm. (xii) 14 to 21.3.60 ; 23.3.61 to 14.4.61 ; 28.3.62 to 8.4.62 ; 30.3.63 to 8.4.63 ; 24.3.64 to 11.4.64.

2. TREATMENTS :

3 irrigational treatments : I_1=Vines irrigated uniformly at 7 days interval, I_2=As in I_1 but irrrigation stopped as soon as flowering commenced and until the berry set is complete and I_3=As in I_1,but irrigation to be given at fortnightly interval from the commencement of harvest till the harvest is complete.

The irrigation given from well as flow irrigation.

3. DESIGN :

(i) R B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) 5 vines/plot. (v) One external and one internal guard row only. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Flea beetle controlled by spraying D.D.T. 0·1% +Folidol 0·025% ; Anthracnosis and downy mildew controlled by spraying Brodeaux Mixture 1% and powdery mildew controlled by spraying Wettable Sulphur 0·1%. (iv) 1960-contd. data for 65—N.A. (v) to (vii) Nil.

5. RESULTS :

60(112)

(i) 21·2 Q/ha. (ii) 13·1 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Q/ha.

Treatment	I_1	I_2	I_3
Av. yield	28·7	15·8	19·0

61(106)

(i) 136·4 Q/ha. (ii) 47·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Q/ha.

Treatment	I_1	I_2	I_3
Av. yield	167·9	105·8	135·4

62(146)

(i) 118·9 Q/ha. (ii) 30·1 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Q/ha.

Treatment	I_1	I_2	I_3
Av. yield	130·7	109·8	116·2

63(201)

(i) 124·9 Q/ha. (ii) 26·7 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Q/ha.

Treatment	I_1	I_2	I_3
Av. yield	120·3	122·5	132·0

64(203)

(i) 117·5 Q/ha. (ii) 36·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Q/ha.

Treatment	I_1	I_2	I_3
Av. yield	135·7	100·1	116·6

Crop :- Grapes. **Ref :- T.N. 60(113), 61(107), 62(147), 63(202).**

Site :- Fruit Res. Stn., **Type :- 'I'.**

Periyakulam.

Object :—To study the effect of different irrigational treatments on the fruit set, yield and quality of fruits.

1. BASAL CONDITIONS :

(i) Dry land (Private). (ii) Sandy loam. (iii) Cuttings. (iv) Pachadraksha. (v) Planted on 28.12.58; 7·6 m.×3·8 m. spacing and panal system. (vi) 6 months. (vii) Pits were filled with compost. (viii) Routine cultural operations like weeding and digging. (ix) Nil. (x) As per treatments. (xi) 36 cm.; 25 cm.; 25 cm.; 23 cm. (xii) 27 to 30.9.60; 19.9.61 to 24.9.61; 12.9.62 to 5.10.62; 5 to 22.9.63.

2. TREATMENTS : and 3. DESIGN :

Same as in expts. nos. 60(112) 61(106), 62(146), 63(201), 64(203) conducted at Periyakulam on page 620.

4. GENERAL :

(i) Good. (ii) Flea beetle attack was controlled by spraying D.D.T. 0·1% and Folidol 0·025%; Anthracnosis and downy mildew were controlled by Bordeaux Mixture 1% and powdery mildew was controlled by Wettable Sulphur 0 1%. (iii) Yield and quality of juice. (iv) 1960—65 (data for 64-65—N.A.). (v) to (vii) Nil.

5. RESULTS :

60(113)

(i) 1847 Kg/ha. (ii) 557 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of Grapes in Kg/ha.

Treatment	I_1	I_2	I_3
Av. yield	1980	1480	2080

61(107)

(i) 7057 Kg/ha. (ii) 3157 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	I_1	I_2	I_3
Av. yield	7750	5840	7580

62(147)

(i) 14567 Kg/ha. (ii) 2585 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	I_1	I_2	I_3
Av. yield	15290	12900	15510

63(202)

(i) 2290 Kg/ha. (ii) 1333 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grapes in Kg/ha.

Treatment	I_1	I_2	I_3
Av. yield	2680	1740	2450

Crop :- Mango. **Ref :- T.N. 64(205), 65(13).**

Site :- Fruit Res. Stn., Periyakulam. **Type :- 'M'.**

Object :—To study the effect of different kinds of manures on yield and quality of fruits.

1. BASAL CONDITIONS :

(i) Dry land (private). (ii) Sandy loam. (iii) Enarching. (iv) Neelum. (v) Planted on 17.7.59 at a spacing of 15·2 m. × 15·2 m. (vi) 2 years. (vii) Pits were filled with compost and top soil. (viii) Ploughing, weeding and digging. (ix) Nil. (x) Irrigated. (xi) 58 cm.; 77 cm. (xii) July and August.

2. TREATMENTS :

All combinations of (1), (2) and (3)+4 extra treatments

	Dosage during 2nd and 3rd year	Dosage during 4th and 5th year	Dosage after 5th year.
(1) 2 levels of N : $N_0=0$,	$N_1=$·225 Kg.	·45 Kg.	·90 Kg.
(2) 2 levels of P_2O_5 : $P_0=0$,	$P_1=$·225 Kg.	·45 Kg.	·68 Kg.
(3) 2 levels of K_2O : $K_0=0$,	$K_1=$·225 Kg.	·45 Kg.	·90 Kg.

Extra treatments are :

		Dosage 1st year	Annual increase	Mature trees
$T_1=$	F.Y.M.	18 Kg.	8 Kg.	64 Kg.
	Bonemeal or Super	2·3 Kg.	·45 Kg.	4·50 Kg.
	A/S	·45 Kg.	·225 Kg.	2·25 Kg.
	Lime	·45 Kg.	·225 Kg.	1·80 Kg.
	Pot. Sul.	·45 Kg.	·225 Kg.	2·25 Kg.
$T_2=$	F.Y.M. alone at	38 Kg.	75 Kg.	150 Kg.
$T_3=$	Growing green manure in the alloys and incorporating.			
$T_4=$	N	·45 Kg.	·90 Kg.	1·8 Kg.
	P_2O_5	·225 Kg,	·45 Kg.	·68 Kg.
	K_2O	·225 Kg.	·45 Kg.	·90 Kg.

N as A/S, P_2O_5 as Super and K_2O as Pot. Sul were applied. Manures were applied during October every year.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) 12. (v) Surrounded by external guard rows (15·2 m). (vi) Yes,

4. GENERAL :

(i) Good. (ii) Stray incidence of mango hopper which was controlled by D.D.T. 0·1% spraying. (iii) Annual growth measurement and yield of mango fruits by weight. (iv) 1964—contd. (v) and (vi) Nil. (vii) The fruits started bearing in 1964.

5. RESULTS :

64(205)

(i) 2885 Kg/ha. (ii) 1260·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/ha.

$T_1=2777$, $T_2=3121$, $T_3=2203$ and $T_4=2813$ Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	2350	3243	2583	3010	2796
P_1	2741	3519	3814	2447	3130
Mean	2545	3381	3198	2728	2963
K_0	3103	3293			
K_1	1987	3469			

65(13)

(i) 1534 Kg/ha. (ii) 1041·4 Kg/ha. (iii) Main effects of N and interactions P×K and N×P×K are significant. (iv) Av. yield of fruits in Kg/ha.

$T_1=1292$, $T_2=811$, $T_3=1815$ and $T_4=1880$ Kg/ha.

	N_0	N_1	K_0	K_1	Mean
P_0	857	2199	839	2217	1528
P_1	1324	1923	1855	1392	1624
Mean	1091	2061	1347	1805	1576
K_0	1073	1622			
K_1	1109	2500			

C.D. for N marginal means =881·7 Kg/ha.
C.D. for body of P×K table=1246 9 Kg/ha.

Crop :- Mango. **Ref :- T.N. 62(28), 64(45).**
Site :- Fruit Res. Stn., Kanyakumari. **Type :- 'I'.**

Object :- To assess the response on growth, production of blossoms and fruits by a phased programme suppling graded quantities of water for Mango crop.

1. BASAL CONDITIONS :

(i) N.A. (ii) Laterite. (iii) Enarching. (iv) Neelam and Banglora, (v) and (vi) N.A. (vii) 6000 Kg/ha. of Compost+180 Kg/ha. of Super. (viii) Quarterly mammuthy digging and weeding. (ix) Nil. (x) As per treatments. (xi) 98 cm.; 41 cm. (xii) Throughout the year.

2. TREATMENTS :

7 levels of irrigations : I_0=Control, I_1=Weekly copions, I_2=Weekly moderate, I_3=Fortnightly copions, I_4= Fortnightly moderate, I_5=Monthly copions and I_6=Monthly moderate.

Where copions=4249 litres per tree and moderate=1416 litres per tree.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 2. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Fruit No. and yield of mango fruits by weight. (iv) 1962—contd. (crop failed in 63 and data for 65—N.A.). (v) to (vii) Nil.

5. RESULTS :

62(28)

(i) 1541 Kg/ha. (ii) 1629 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	369	1575	1943	2512	469	3082	837

64(45)

(i) 2704 Kg/ha. (ii) 2246 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6
Av. yield	168	5628	2211	3919	637	5728	637

Crop :- Paddy, Groundnut, Green-gram, Cotton and Cowpea (*Samba*). **Ref :- T.N. 63(72).**

Site :- Rice Res. Stn., Tirurkupam. **Type :- 'X'.**

Object ;—To find out the most suitable combination of crops in terms of monetary returns in mixed cropping.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy loam. (iii) 18.9.63. (iv) (a) 2 ploughings with iron plough and sufficient no. of ploughings with country plough to get a good tiller. (b) Sowing by drill. (c) As required under different treatments according to prescribed spraying. (d) As per treatments. (e) 2. (v) 250 Q/ha. of F.Y.M. (vi) Paddy—T.K.M.—1, Cotton—K. 6 ; Green-gram—CO. 1 ; Groundnut—TMV. 2 and Cowpea—C. 5. (vii) Unirrigated. (viii) 2 weedings. (ix) 73 cm. (x) 17, 18.1.64.

2. TREATMENTS :

1. Paddy alone, 2. Paddy+Groundnut, 3. Paddy+Green-gram, 4. Paddy+Cotton, 5. Paddy+Cowpea.
Paddy was sown with a spacing 15 cm.×15 cm. Other crops were sown from the 5th row onwards with a plant to plant spacing of 76 cm. accommodating 5 lines in a plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 6·1 m.×3·7 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Av. value of produce in Rs/ha. (iv) (a) 1963 alone. (b) —. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 419 Rs/ha. (ii) 58·1 Rs/ha. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. value	474	358	341	665	257

C.D.=69·9 Rs/ha.

Crop :- Paddy, Cotton, Groundnut and Red gram (*Samba*). **Ref :- T.N. 62(55).**

Site :- Rice Res. Stn., Tirurkuppam. **Type :- 'X'.**

Object :—To find out the most suitable combination of crops in terms of monetary returns in mixed cropping.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 5605 Kg/ha. of G.M.+168 Kg/ha. of A/S+168 Kg/ha. of Super. (ii) Sandy loam. (iii) 22.8.62. (iv) (a) 2 ploughings with iron plough and sufficient no. of ploughings with country plough (b) Sowing by drill. (c) and (d) As per treatments. (e) 2. (v) 250 Q/ha. of F.Y.M. (vi) Paddy—ADT. 22 (medium), Red gram—SA. 1, Cotton—MCU. 1, Groundnut—TMV. 3. (vii) Unirrigated. (viii) 2 weedings. (ix) 87 cm. (x) 28.12.62 to 3.4.63.

2. TREATMENTS :

7 mixed cropping treatments : T_1=Paddy alone with spacing 15 cm.×15 cm., T_2=Cotton alone with spacing 76 cm.×23 cm., T_3=Groundnut alone with spacing 23 cm.×23 cm., T_4=Red gram alone with spacing 183 cm.×76 cm., T_5=Paddy+Cotton—Paddy with 15 cm.×15 cm. spacing and Cotton with 122 cm.×23 cm. spacing, T_6=Paddy+Red gram—Paddy with 15 cm.×15 cm. spacing and Red gram with 24 cm.×76 cm. spacing and T_7=Paddy+Groundnut—Paddy with 15 cm.×15 cm. spacing and Groundnut 30 cm.×23 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) (a) and (b) 6·1 cm. × 3·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Av. value of produce in Rs/ha. (iv) (a) 1962 only. (b) and (c)—(v) and (vi) Nil. (vii) Expt. conducted in the previous two years, failed due to unprecedented showers and drought respectively.

5. RESULTS ;

(i) 599 Rs/ha. (ii) 146·4 Rs/ha. (iii) Treatment differences are significant. (iv) Av. monetary value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. value	494	578	835	170	766	635	712

C.D. = 193·2 Rs/ha.

Crop :- Cotton (*Winter*). **Ref :- T.N. 64(174).**

Site :- No specific name for Stn.; only Periyakulam. **Type :- 'X'.**
Centre of the Co-ordinated Agronomic Scheme on Cotton whose H.Q. is Srivilliputtur.

Object :—To determine suitable combinations of Cotton and other crops for getting better monetary returns.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) Black loamy. (iii) 5.9.64. (iv) (a) 3 ploughings with country plough. (b) Dibbling in lines. (c) Cotton at 38 to 50 Kg/ha. Black gram at 62 Kg/ha. Groundnut at 115 Kg/ha. (d) Cotton—15 cm. × 61 cm. Groundnut and Black gram—23 cm. × 15 cm. (e) Cotton (1), Black gram (4) and Groundnut (2). (v) N at 22·5 Kg/ha. as A/S, P_2O_5 at 27 Kg/ha. as Super phosphate. K_2O at 33·5 Kg/ha as Mur. of Pot. for Cotton and Black gram. For Groundnut P_2O_5 and K_2O only at the above rates. (vi) Cotton : MCU—1; Groundnut—TMV—2; Black gram—Local. (vii) Unirrigated. (viii) 3 weedings and hand hoeings. (ix) 83 cm. (x) Cotton : 16.3.65 onwards; Groundnut : 2.2.65 and Black gram : 18.1.65.

2. TREATMENTS :

7 treatments : T_1=Cotton alone, T_2=Cotton+Groundnut in (1 : 2) ratio, T_3=Cotton+Groundnut in (1 : 3) ratio, T_4=Groundnut alone, T_5=Cotton+Black gram in (1 : 2) ratio, T_6=Cotton+Black gram in (1 : 3) ratio and T_7=Black gram alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 21·9 m. × 19·2 m. (iii) 6. (iv) (a) and (b) 21·9 m. × 2·7 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. Spraying of Endrin and Folidol was done as a prophylactic measure. (iii) Yield of *kapas* and money value of the produce. (iv) (a) 1963-64. (1963 Expt. failed). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 481 Rs/ha. (ii) 122·8 Rs/ha. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. value	412	347	306	124	826	706	648

C.D. = 147·8 Rs/ha.

Crop :- Potato, French beans and Cabbage (*Autumn*). **Ref :- T.N. 60(109), 61(100).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'X'.**

Object :—To assess the effect of mixed cropping on the yield of Potato in view of the recent trends in favour of mixed cropping.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin.* (c) Nil. (ii) Laterite soil. (iii) 9.9.60; 18.9.61. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 25 Q/ha. (d) 45 cm.×23 cm. (e) 1. (v) 123 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) 1 hoeing, weeding and earthing up. (ix) 50 cm.; 38 cm. (x) 10.1.61; 5.1.62.

2. TREATMENTS :

3 mixed cropping treatments : T_1=Potato alone, T_2=Potato+French beans and T_3=Potato+Cabbage. French beans and Cabbage planted 15 days after sowing Potato.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 40·5 sq. m. (v) 2 rows on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of late blight for 60(109). Dithane was sprayed twice; No incidence for 61(100). (iii) Yield of tuber, Cabbage and French beans (iv) (a) 1960—64 (data for 62 to 64—N.A.) (b) No. (c)Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Data of crops other than Potato is N.A. Error variances are heterogeneous and interaction is absent. Therefore individual results are presented.

5. RESULTS :

60(109)

(i) 117·5 Q/ha. (ii) 17·0 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	112·8	113·8	126·0

61(100)

(i) 90·2 Q/ha. (ii) 10·1 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	89·3	93·0	88·2

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./ plot
1960	112·8	113·8	126·0	N.S.	117·5	17·0
1961	89·3	93·0	88·2	N.S.	90·2	90 2
Pooled	101·0	103·4	107·1	—	107·1	—

Crop :- Potato, French beans and Cabbage (*Summer*). **Ref :- T.N. 63(192), 64(193).**

Site :- Agri. Res. Stn., Nanjanad. **Type :- 'X'.**

Object :—To assess the effect of mixed cropping on the yield of Potato in view of the recent trends in favour of mixed cropping.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 13.3.63: 5.3.64. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 25 Q/ha. (d) 45 cm. × 23 cm. (e) 1. (v) 123 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 91 cm.; 70 cm. (x) 1.9.63; 19.9.64.

2. TREATMENTS :

3 mixed cropping treatments : T_1=Potato alone, T_2=Potato+French beans and T_3=Potato+Cabbage. French beans and Cabbage were planted 15 days after sowing of Potato.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 4·6 m. × 8·8 m. (v) 2 rows on either side. (vi) Yes.

4. GENERAL :

(i) Poor for 63(192); Good for 64(193). (ii) Incidence of late blight and yellowing for 63(192) in Potato. Dithane and D.D.T. sprayed 6 times. Heavy mortality in French beans due to cut worm attack for 63(192); Severe infestation of late blight for 64(193). Dithane was sprayed thrice. (iii) Yield of tubers, French beans and Cabbage. (iv) (a) 1960—64 (60 to 62 data N.A.). (b) No. (c) Results of combined analysis given under 5. Results. (v) N.A. (vi) Nil. (vii) Data on crops other than Potato is N.A. Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

(i) 78·2 Q/ha. (ii) 23·5 Q/ha. (based on 30 d.f. made up of pooled error and Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	81·2	76·6	76·8

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1963	70·4	59·9	66·9	N.S.	65·7	22·3
1964	92·0	93·2	86·7	N.S.	90·6	25·6
Pooled	81·2	76·6	76·8	N.S.	78·2	23·5

Crop :- Potato, French beans and Cabbage (*Winter*).

Ref :- T.N. 61(98), 62(139), 64(194).

Site :- Agri. Res. Stn., Nanjanad.

Type :- 'X'.

Object :—To assess the effect of mixed cropping on the yield of Potato in view of the recent trends in favour of mixed cropping.

1. BASAL CONDITIONS :

(i) (a) *Lupin*—Potato. (b) *Lupin*. (c) Nil. (ii) Laterite soil. (iii) 21.2.61: 6.2.62; 29.1.64. (iv) (a) 3 ploughings and breaking of clods. (b) Planting seeds along furrows. (c) 25 Q/ha. (d) 45 cm. × 23 cm. (e) 1. (v) 123 Q/ha. of F.Y.M.+2180 Kg/ha. of Nanjanad mixture. (vi) Great Scot. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 37 cm.; 40 cm.; 12 cm. (x) 19.6.61; 29.5.62; 26.5.64.

2. TREATMENTS : and 3. DESIGN :

Same as in Expt. nos. 60(109)), 61(100) conducted at Nanjanad on page 627.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of tubers, French beans and Cabbage. (iv) (a) 1960—64 (data for 1963 N.A.). (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Data of crops other than Potato is N.A. Error variances are heterogeneous and Treatments×years interaction is absent. Therefore results of individual years are presented below.

5. RESULTS :

61(98)

(i) 66·7 Q/ha. (ii) 13·3 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	68·2	69·0	63·0

62(139)

(i) 225·6 Q/ha. (ii) (a) 36·9 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	233·8	219·0	224·0

64(194)

(i) 55·9 Q/ha. (ii) 25·5 Q/ha. (iii) Treatment differences are not significant. (iv) Av. yield of tubers in Q/ha.

Treatment	T_1	T_2	T_3
Av. yield	59·4	57·4	51·0

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1961	68·2	69·0	63·0	N.S.	66·7	13·3
1962	233·8	219·0	224·0	N.S.	225·6	36·3
1964	59·4	57·4	51·0	N.S.	55·9	25·5
Pooled	120·5	115·1	112·7	—	116·1	—

Crop :- As per treatments (*Winter*). **Ref :- T.N. 63(166), 64(173).**

Site :- Reg. Res. Stn., Koilpatti. **Type :- 'X'.**

Object :—To determine the suitable combination of Cotton grown with other crops for getting better monetary returns.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* for 63, Cotton for 64. (c) Nil. (ii) Black soil. (iii) 5.11.63; 14.10.64. (iv) (a) 2 ploughings with country plough. (b) Dibbling in lines, (c) Cotton at 37·5 to 50 Kg/ha., Thenai at 3 to 4 Kg/ha. Black gram at 13 to 15 Kg/ha. (d) Cotton : 45 cm.×15 cm.; Black gram : 22 cm.×15 cm. and Thenai 22 cm.×15 cm. (e) 1. (v) 56 Kg/ha. of N as A/S. (vi) Cotton : K—6 (Pandyam), others local. (vii) Unirrigated. (viii) 3 weedings, and 3 hoeings. (ix) 54 cm. in 63, 43 cm. in 64. (x) 18.3.64 to 30.4.64, 27.2.65 to 30.3.65.

2. TREATMENTS :

7 treatments : T_1=Cotton alone, T_2=Cotton+Tenai in 1 : 2 ratio, T_3=Cotton+Tenai in 1 : 3 ratio, T_4=Tenai alone, T_5=Cotton+Black gram in 1 : 2 ratio, T_6=Cotton+Black gram in 1 : 3 ratio and T_7=Black gram alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. for 63, 18·3 m.×18·9 m. for 64. (iii) 6. (iv) (a) 13·7 m.×3·7 m. for 63 ; 18·3 m.×2·7 m. for 64. (b) 13·7 m.×3·7 m. for 63 and 17·7 m.×1·8 m. for 64. (v) Nil for 63 and 1 to 2 rows alround. (vi) Yes.

4. GENERAL :

(i) Below normal. (ii) Nil. (iii) Yield of *kapas* and money value of produce. (iv) (a) 1963 and 64 available. (b) and (c) Nil. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Therefore results of individual years are presented below.

5. RESULTS :

63(166)

(i) 204 Rs/ha. (ii) 58·7 Rs/ha. (iii) Treatment differences are highly signinificant. (iv) Av. value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	472	194	213	54	213	226	31

C.D.=69·3 Rs/ha.

64(173)

(i) 263 Rs/ha. (ii) 94·3 Rs/ha. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	458	265	240	126	266	259	224

C.D.=111·1 Rs/ha.

Years	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig.	G.M.	S.E./plot
1963	472	194	213	54	213	226	31	**	204	58.7
1964	458	265	240	126	266	259	224	**	263	94·3
Av.	465	229	227	90	239	243	128	—	234	—

INDEX (Crop-wise and Type-wise)

(Page Number)

Type Crop	M	MV	C	CV	CM	CMV	I	IM	IC	D	X
Paddy	1	94	116	—	118	124	—	—	—	127	—
Jowar	207	—	—	—	232	233	—	235	—	236	—
Bajra	257	—	—	—	—	—	—	—	—	269	—
Ragi	270	—	—	—	299	—	—	299	—	300	—
Varagu	306	—	—	—	—	—	—	—	—	—	—
Potato	308	313	314	—	322	—	—	—	—	324	—
Bhindi	—	—	—	—	—	—	—	—	—	344	—
Bitter gourd	—	—	—	—	—	—	—	—	—	351	—
Brinjal	357	—	—	—	—	—	—	—	—	358	—
Cabbage	—	—	—	—	—	—	—	—	—	363	—
Cauliflower	—	—	—	—	—	—	—	—	—	365	—
Corriander	—	—	—		—	—	—	—	—	365	—
Field Beans	—	—	—	—	—	—	—	—	—	366	—
Sweet Potato	—	—	—	—	—	—	—	—	—	369	—
Tapioca	—	—	—	—	—	—	—	—	—	370	—
Tomato	—	—	—	—	—	—	—	—	—	371	—
Sugarcane	372	391	396	401	—	—	—	—	403	405	—
Cotton	419	—	460	—	465	479	—	480	—	483	—
Tobacco	512	—	—	—	—	—	—	—	—	—	—
Groundnut	518	551	—	—	—	563	567	568	—	569	—
Gingelly	579	581	581	—	—	—	—	—	—	582	—
Castor	587	—	—	—	—	—	—	—	—	588	—
Safflower	—	—	—	—	—	—	—	—	—	592	—
Chillies	594	—	—	—	—	—	—	—	—	600	—
Digitalis Purpuria	605	—	—	—	—	—	—	—	—	—	—
Daturia Innoxia	606	—	—	—	—	—	—	—	—	—	—
Banana	607	—	608	—	609	613	—	—	—	—	—
Grapes	615	—	618	—	—	—	620	—	—	—	—
Mango	622	—	—	—	—	—	624	—	—	—	—
X	—	—	—	—	—	—	—	—	—	—	625

LIST OF PUBLICATIONS
OF
NATIONAL INDEX OF AGRICULTURAL FIELD EXPERIMENTS

Volume No.	Region	Part 1 (1948-53)		Part 2 (1954-59)	
		No. of pages	Price per copy (Excld. postage)	No. of pages	Price per copy (Excld. postage)
1.	Andhra Pradesh	386	Rs. 12.00	510	Rs. 12.80
2.	Assam	87	Rs. 4.00	152	Rs. 6.80
3.	Bihar	303	Rs. 9.75	933	Rs. 21.85
4.	Gujarat	185	Rs. 6.75	444	Rs. 9.25
5.	Kerala	204	Rs. 7.25	292	Rs. 8.05
6.	Madhya Pradesh	357	Rs. 11.25	554	Rs. 13.70
7.	Tamil Nadu	436	Rs. 13.25	466	Rs. 11.70
8.	Maharashtra	886	Rs. 25.00	1035	Rs. 24.25
9.	Mysore	467	Rs. 14.00	866	Rs. 20.45
10.	Orissa	70	Rs. 3.50	213	Rs. 6.30
11.	Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir	672	Rs. 19.50	799	Rs 19.20
12.	Rajasthan	84	Rs. 4.00	213	Rs. 6.20
13.	Uttar Pradesh	1274	Rs. 35.75	1724	Rs. 42.10
14.	West Bengal	226	Rs. 7.75	297	Rs. 8.15
15.	Central Institutes	348	Rs. 11.00	666	Rs. 16.50
	Complete set (excluding postage)		Rs. 184.75		Rs. 227.30

For copies, please write to :

The Chief Administrative Officer,
INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS
(I. C. A. R.)
Library Avenue, New Delhi-110012

UNIVERSITY OF ILLINOIS-URBANA
3 0112 116658870